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AMERICAN STEEL FOUNDRIES

NEW YORK

CHICAGO

ST. LOUIS

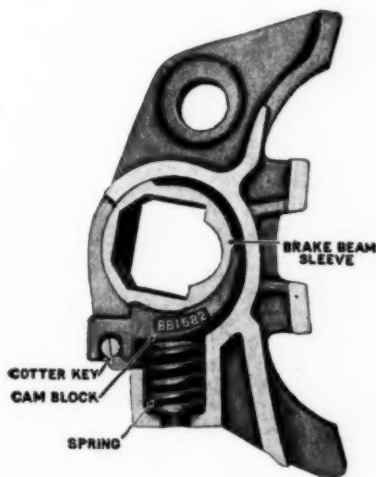


Half Section Hercules automatically adjustable Brake Head with Cam Block in starting position. Spring Free.



The Hercules Adjustable Brake Head, Cam Block Type,

automatically adjusts itself to wheel contour. The coil spring under almost full compression thrusts the cam block against the brake beam sleeve, resulting in frictional resistance to rotation of brake head on the sleeve. Eliminates lost motion and wear, yet permits automatic adjustment under braking action. Face of brake head always remains concentric to tread of wheel, insuring even brake shoe wear. No bolts, nuts or screws to wear out or become loose. Brake heads with shoe mounted thereon remain in position without wear because compression spring is working at maximum loaded capacity. Brake head cannot work off endwise of sleeve because the cam block fits in the sleeve groove, providing extra long bearing surface for endwise locking.



Half Section Hercules automatically adjustable Brake Head with Cam Block in operating position. Spring compressed.



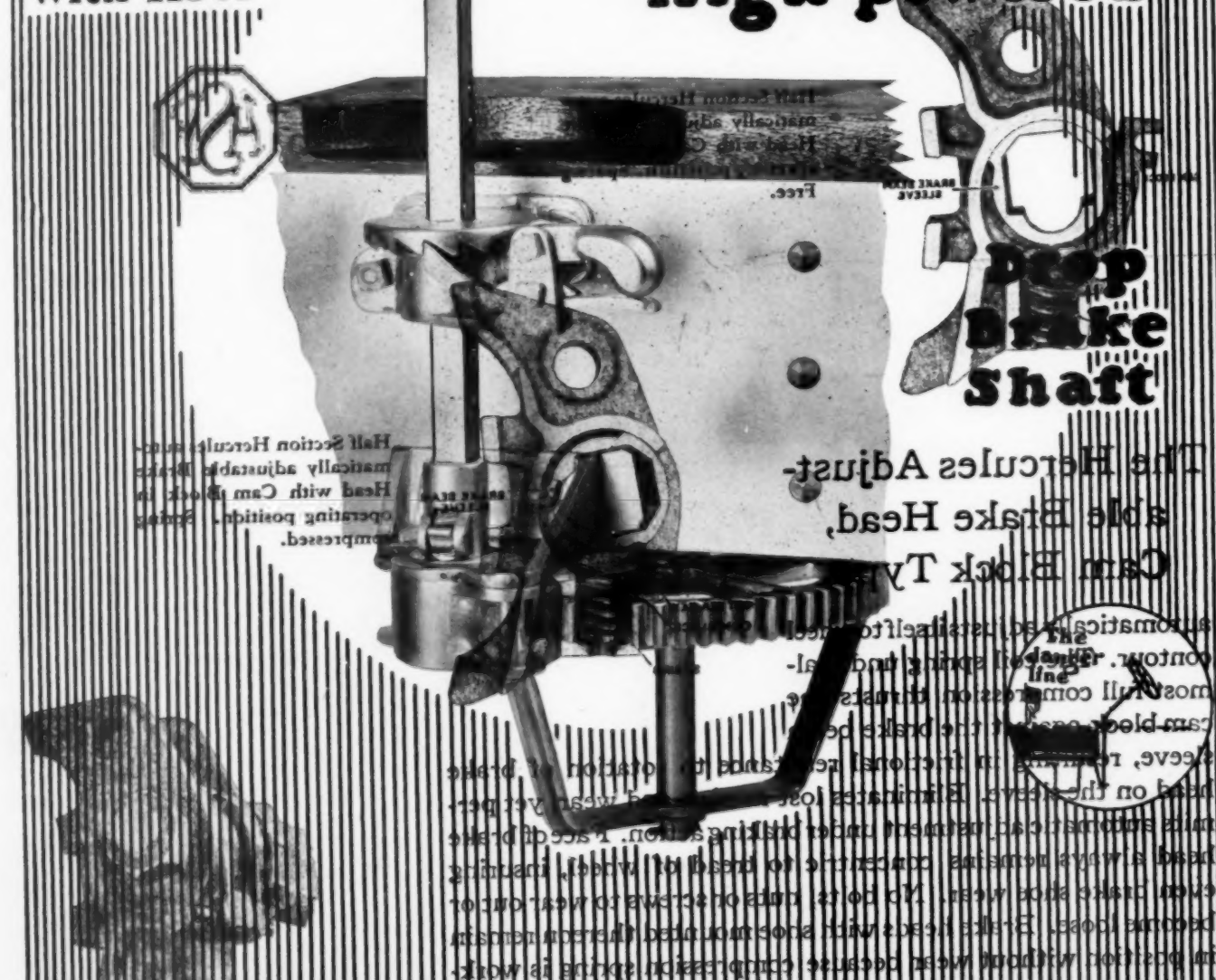
Hercules automatically adjustable Brake Head, Cam Block Type.

HERCULES AUTOMATICALLY ADJUSTABLE BRAKE HEAD

Always Available

AMERICAN STEEL INDUSTRIES

CHICAGO
High powered
Wheel can be dropped flush with floor



Union Railway Equipment Co.
McCormick Building
Chicago

EDITORIAL



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Gas and electric welding apparatus required more exhibit space than ever before at the recent convention of the

Welding Needs Co-ordination

Mechanical Division of the American Railway Association held at Atlantic City. The report of the committee on welding and the discussion which followed it showed that the amount of welding being done by the railroads is increasing and that the railroad men are endeavoring to take full advantage of this most useful tool. The recent purchase of 28 arc welding equipments by the Santa Fe is an example of this increase. If this increase is to continue and all roads are to profit by developments in the art, the work done by the several societies and associations interested in the subject of welding must be co-ordinated. The Association of Railway Electrical Engineers is preparing a manual on electric welding as used in railroad shops. This will be available to railroads when finished. Its compilation will require much work and when completed it will be composed of useful, practical information. Its usefulness will, of course, be limited to electric welding. More information is needed. The American Welding Society has unofficially offered its help. The Gas Products' Association, the Master Boilermakers' Association, the American Electric Railway Association and the American Engineering Standards Committee can similarly be relied on to fulfill a want. What is needed most at the present time is co-ordination of the work done by these several bodies so that the most important problems will be given priority and duplication of effort be eliminated.

President Crowley, of the New York Central, in his brief address before the superintendents at Buffalo, as reported in

The 16-Hour Day—for Officers

the *Railway Age* last week, put a whole sermon into five lines; he told the superintendents that in dealing with an employee who had made a blunder, they could do much more good in a five-minute interview than they could by imposing a thirty-day suspension. What a heap of truth in these words! And it is such an old truth! Yet we have to keep on re-learning it. It is important to read what Mr. Crowley said in the sentence preceding the one quoted. George Findlay, general manager of the London & North Western, a generation ago, put the whole remedy for all employees' grievances in a single sentence—"Have a good understanding." George R. Brown, one of Mr. Crowley's predecessors at Corning, put the same rule into practice. Without doubt Mr. Crowley, at Buffalo, was speaking from personal experience. How is the young superintendent—the new trainmaster—to acquire the veteran's proficiency in this art; the art of putting so much power into a five-minute interview? The suggestion to "give the employees an opportunity to talk to you" means much more than "the open door"; it means or should mean, the expenditure of many hours every week in this business; many interviews with men who have not blundered; when all hands are calm. It is the personality of the officer that gives force to the interview, and he cannot make much headway in impressing his personality on the engineman or the conductor if he sees them only when a collision is to be investigated.

And, as we have suggested in the title to this paragraph, such "personal work" takes a good deal of time. Perhaps it would be a good idea for Mr. Crowley to tell us how many hours a day he worked when he was a train-master. We should find, no doubt, that he spent much time at night, as well as by day, in imparting to his subordinates some of that other good "gospel" which was printed in the last issue of the *Railway Age*, namely, the "ten points" set forth by Mr. Bruere (page 1806).

The railways have made an enviable record in reducing the amounts paid out for the settlement of claims for loss and

Diagnosis Must Precede Prescription

damage to freight in transit during the last two or three years. This has been due in large measure to the organization of the Freight Claim Division by the American Railway Association, which has concentrated its attention on the study of the causes of claims and the means of eliminating the conditions which give rise to them. Those roads which have been most successful in reducing their individual payments have likewise profited most from the detailed study of their methods and the education of their employees regarding the magnitude of this loss and ways to overcome it. However, splendid as are the results which have been secured, there is still much to be done before these losses may be said to have been reduced to the minimum. In an article published in another column, G. D. Brooke, superintendent of transportation of the Western Lines of the Baltimore & Ohio, calls attention to the necessity for the further and more detailed analysis of these claims before those responsible for them can proceed intelligently to remedy many of the conditions which are giving rise to them. Unless one knows the conditions which are responsible for claims, he will grope in the dark in attempting to eliminate them. In other words, it is necessary to make a detailed diagnosis of the case before it is possible to prescribe the remedy intelligently and accurately.

The attention which President Aishton of the American Railway Association has drawn to the opportunities for fuel

An Opportunity for the Fuel Department

economy through co-operation with the Joint Committee on Fuel Economy of the Operating, Mechanical, and Purchases and Stores Divisions of the American Railway Association, and by the objective of one pound less fuel per 1,000 gross ton-miles in freight service and its equivalent in switch, passenger and other service, which he urged on the railroads in his addresses before the Mechanical and the Purchases and Stores Divisions at the Atlantic City conventions, suggests an opportunity which lies within the reach of the fuel department on every railroad where such a department is organized. Fuel, more than any other one element of operating expense, is a reflection of the efficiency with which the whole railroad property is operated and maintained. Not only is fuel consumption directly affected by the skill with which cars are made up into trains and dispatched from terminals and by the care

with which they are moved over the road; it is affected by the character of locomotive maintenance and to some extent by the character of car maintenance as well. That the effectiveness with which the maintenance of way department handles its work has a direct bearing on fuel economy was clearly brought out by D. F. Stevens, general superintendent, Baltimore & Ohio, in his paper before the recent convention of the International Railway Fuel Association at Chicago. Primarily established to control this one big item of operating expense, the fuel department, by the very nature of its job, becomes one of the few inter-departmental co-ordinating agencies existing in present-day railroad organization. In the performance of the task for which it is held specifically responsible it necessarily becomes cognizant of many conditions not strictly within its jurisdiction which may readily be improved if the proper officers become thoroughly acquainted with the possibilities which the suggested improvements offer, not only for increasing fuel economy, but for reducing many other items of operating expense as well. To take full advantage of this opportunity the officers of the fuel department must have a broad vision of railroading and must know how to get results through tact and diplomacy rather than by a strict use of the authority which is theirs by right of the positions they hold. With officers of this type to determine its course, the fuel department in time will gain the confidence and secure the support of every other department affected by its activities. It has the opportunity to become a real transportation engineering department.

No one who attended the convention of the American Association of Railroad Superintendents at Buffalo on June 18-20, a report of which appeared in the *Railway Age* of June 28, page 1813, could fail to be impressed with the value of this organization to the railways. As was pointed out by Mr. Aishton,

Mr. Crowley and others, the superintendent occupies a strategic position in the railway organization. It is the superintendent who exercises immediate supervision over the operations involved in the handling of traffic and on most roads also to at least a limited extent over the maintenance of the roadway and equipment. The constant supervision of these varied operations to meet the demands for economy in every direction is severe in itself. However, of late there has also developed a realization that the superintendent holds a vital relation to the broader problems of railroading, including the creation of proper public sentiment towards the railways through the education of the employees and patrons of the carriers regarding their problems. The fact that the superintendents themselves are realizing their obligation in this direction was reflected in the program for their convention which included several addresses and reports on various phases of this problem. They did not, however, overshadow the more strictly transportation phases of the superintendent's work, for extended consideration was given to such topics as the classification of freight trains to avoid intermediate switching, long engine runs, the maintenance of manifest and time freight schedules, the elimination of the 31 order, the loading of equipment to capacity, the maintenance of maximum train loads, etc. The seriousness with which those in attendance at the convention entered upon their work was indicated by their postponement of a trip of inspection around the terminals at Buffalo on the closing afternoon of the meeting until long after the time for which it was scheduled in order to permit the members to spend more time in discussing their reports. The superintendents' association has had a hard struggle in recent years, not a small part of which has been due to the lack of encourage-

ment from railway managements. Other branches of railway service have found the interchange of ideas through the discussion of reports at conventions of great value. The same should be the case in the transportation department. The man who is too busy to attend a convention and the road which cannot spare its men to attend such a meeting will usually be found to have the most to learn from such meetings. The American Association of Railroad Superintendents deserves the support of the railways for what it is now doing and for the still greater work which it can do.

Making Improvements as They Are Needed

SECOND TRACK WORK is often made the occasion for carrying out long deferred projects for grade revision and since the full advantage of a reduction in grade may not be secured until the revision has been completed over an entire engine district it has been the policy of some roads to defer such improvements until they could be financed and carried out over the entire district at one time. However, in spite of this consideration, many railroads have prosecuted second track work involving grade revision in accordance with plans calling for a piecemeal procedure and among these roads are some whose operations have been conducted most prudently and successfully.

This procedure has the advantage that it insures a proper relation between capitalization and earnings from year to year with the gradual growth of business. The establishment of the improved grades is frequently predicated on economies to be obtained under a volume of traffic anticipated in the future. Consequently the conduct of improvements on a large scale may result in their completion in advance of the time when the assumed volume of traffic has developed. Moreover, the physical conditions on many engine districts are such as to make it possible to adopt a program for piecemeal procedure in such a way that considerable advantage can be derived from the completion of the work in short sections. For example, one plan frequently followed is to attack the work first on those portions of the district where the physical conditions are most favorable and where both second track and grade change may be had at the smallest expenditure. Such an improvement will be effective in reducing congestion and increasing the average speed with the result that an appreciable reduction may be made in the average time of tonnage trains over the district. Again, proper consideration of the physical conditions over the division may permit the adoption of a plan whereby a considerable continuous mileage adjacent to one terminal may be subjected to improvement at moderate expense with the result that the advantage of the revised grade may be largely obtained by establishing a small yard at the point of grade change for reducing or filling out tonnage, the accumulation of cars at this point being disposed of by turn-around runs.

Another factor to be considered is the determination of the points of most frequent congestion, as for example, the territories embracing the largest number of meeting points or the location of coal and water stations serving the majority of the trains. Second track in such districts will relieve congestion while grade revision will facilitate the stopping and starting of tonnage freight and heavy passenger trains.

Finally, when the work has covered all but one or two sections of the district it has sometimes been found possible to effect a change in tonnage rating by introducing helper service in the remaining sections of heavy grade single track. This plan has the objection that the return movement of the helper engines will tend to focus congestion at these points, but this will be offset in considerable measure by the

decrease in the number of trains as a consequence of the increase in tonnage rating. Moreover, the plan has proved effective in a number of cases in deferring enormous expenditures for a number of years.

These comments are not offered here as presenting anything essentially new. The measures outlined above have been applied with profit time and again. No general rules can be set up for the solution of all problems. Each case must be considered on its individual merits. However, failure to appreciate the full significance of these principles has not infrequently led to two unfortunate results, (1) an ill advised investment for wholesale improvements when smaller outlays appropriated from year to year would have been productive of better results, (2) a tendency to postpone an improvement program entirely because of inability to finance it in its entirety. The first was more prevalent in years gone by, the second is to be noted more frequently at the present time. It is an unfortunate fact that some railroads are victims of excessive capital expenditures while others in the same territory are suffering from a failure to make improvements that are sorely needed. In general, conservative expenditures in the direction of a comprehensive plan will produce the best results.

Railroad Business and Railroad Employees

FREIGHT CAR LOADINGS are a good index of general business activity. They show not only that there has been a sharp decline of general business within recent months, but that until the middle of June, at least, business was showing no tendency to revive. In fifteen of the first sixteen weeks of 1924, carloadings showed an increase as compared with loadings in 1923. In each of the thirteen weeks beginning with the last week in March they have shown a decrease, and the decrease has been becoming larger. The average number of cars loaded with freight in the four weeks ended June 14, 1924, was 887,883, as compared with 992,926 in the corresponding weeks of 1923, the average decline per week being 104,413. A year ago carloadings had begun to exceed a million cars a week. In the week ended June 14, they were less than 903,000 cars. When the decline in carloadings began it was confined almost entirely to coal loadings. Recently the loadings of all the large classes of commodities, except grain and its products and live stock, have been less than a year ago. They reflect a sharp decline in mining, manufacturing and other forms of industrial activity.

To what cause or causes is due the decline of general business that these figures reflect? The money market shows no sign of weakness. Interest rates are low and there are ample funds available for any kind of concern that has good credit. Doubtless the influence exerted by political agitation is often exaggerated, but there is little question in the minds of most students of business conditions that the spectacle presented by Congress during its recent session did more than anything else to start business down hill. Agitation and threats of adverse legislation were directed in Congress against almost every kind of business except agriculture. The railways especially were menaced by hundreds of bills to increase their expenses and reduce their rates. Business men became alarmed. They became seriously uncertain about the future. They decided to wait and see what Congress would do. After Congress adjourned, they decided to wait and see what the political conventions would do and what the candidates they nominated would say. Politics started business on the toboggan.

Among those who were most active in promoting legislation adverse to business, and especially to the railway business, were the leaders of the railway labor unions. They are still

working at the same task. They will be among the most active of the radicals at the "progressive conference" in Cleveland. Whatever else that conference does, it may be relied upon to favor passage of the Howell-Barkley bill, the repeal of the rate-making provisions of the Transportation Act, and government ownership of railways.

Railway employees may well consider the effects on their welfare that already have been produced and are being produced by the political activities of the radicals, and especially of the railway labor leaders. The decline in traffic that has been caused by the recession of business has caused a sharp decline of railway earnings and net operating income. In March the total earnings of the Class I roads were \$44,400,000 less than in March, 1923, and in April they showed a decline of \$48,500,000. Net operating income in April was almost \$22,000,000, or 26 per cent, less than in April, 1923. The statistics for May, when available, probably will show a still larger decline in both total earnings and net operating income.

These declines of earnings, gross and net, are making it necessary for the railways to retrench. Retrenchment always involves reductions of employees. In March, 1923, the average number of employees was 1,816,479 and their total compensation was \$255,447,764. In March, 1924, the number of employees was 1,760,268, a reduction of 56,211, and the total wages paid was \$241,406,659, a reduction of \$14,041,105. In every month of 1923 from January to August there was an increase in the number of employees. The wage statistics for April, 1924, are not yet available, but they probably will show little or no increase in the number of employees as compared with March, and it is not unlikely they will show a reduction. It seems highly probable that the number of men employed by the railways in July will be almost 200,000 less than it was a year ago.

The political activities of the labor leaders already are producing one important result for which they were intended. They have been advocating regulation that would reduce the net return earned by the railways. The regulation they have advocated has not been adopted, but the mere threat of it and of other forms of governmental action that have been advocated have so frightened business that the traffic of the railways has been reduced. The reduction of railway net return sought has thereby been accomplished. These political activities have, however, incidentally produced an effect that was not intended, although it ought to have been foreseen. By frightening business into a state of depression they have indirectly reduced the number of men employed by the railways and the total compensation received by them. The radical labor leaders, while carrying on activities to reduce railway earnings, have also reduced the earnings of the men whose money they have been using to carry on these activities.

Unless business conditions improve railway employees probably will be confronted with something else which may well cause them misgivings. This will be a movement for the reduction of their wages. The railways cannot continue to pay present wage scales out of earnings reduced as much as they have been within the last three months. Furthermore, the depression is causing a decline in the cost of living which, if it continues, will enable the railways to make a case for reductions of wages.

The ultimate object of the political activities of the railway labor leaders is well known. They are trying to destroy the earning capacity of the railways as a means of promoting the cause of government ownership. What already is occurring indicates, however, what will be the course of developments if their activities become more successful. To help in the work of destroying the earning capacity of the railways they are advocating reductions of rates. Reductions of rates would reduce the net operating income earned by the railways, even more rapidly than has the recent decline of traffic. It would force the railways to retrench much more

sharply than they are retrenching now, and, incidentally, to reduce the number of employees much more. It would force them to seek reductions of wages corresponding to the reductions of rates. This would precipitate a great struggle between the railways and the labor union. It would not and could not be avoided, because it would be the duty of railway officers in these circumstances to adopt every legitimate means available to reduce expenses, and any man who doubts they would perform that duty is foolish. The leaders of the shop crafts unions apparently did not believe railway officers would accept the challenge of a strike in 1922, but they did accept it and they won the strike.

The moral of all of this ought to be obvious to railway employees. Conceivably, there are two ways in which government ownership of railways might be brought about. One of these is the way that the labor union leaders are trying to use now—that of seeking regulation which would finally ruin the railways and make government ownership unavoidable. But that way leads through chaos. It might or might not lead to government ownership. It is certain that before government ownership was reached hundreds of thousands of railway employees would long be out of work and would have to bear enormous losses and great suffering. The other way in which government ownership might conceivably be brought about is by frankly and persistently advocating that policy upon its merits. It might or might not be possible to convince the American public that government ownership ought to be adopted. It would be more fair and less dangerous to all concerned to try to bring it about in that way than to try to bring it about by political activities intended to ruin the railway companies.

Whether the railways should be owned and operated by private companies is a question of importance which may properly be made the subject of public discussion. As long as they are privately owned and operated, however, it will do nothing but harm to railway employees for labor leaders to persist in seeking to destroy their earning capacity, for as long as private ownership continues the prosperity of the employees will depend mainly upon the prosperity of the railways.

Managements Control Statistics

CAR DEPARTMENT OFFICERS will be interested in the analysis of the primary account "Freight Train Cars—Repairs," presented by J. L. White on another page in this issue. The method set forth by Mr. White does not go beyond the possibilities offered by the use of original data already required by the M. C. B. Rules or the present I. C. C. accounting classification, with the addition of labor and material equation factors which the roads already have been required to make and which can be kept up to date without undue labor. It offers to the responsible car department officer an opportunity to determine specifically what part of the fluctuations in the total amount of this primary account is caused by changes in rates for labor and prices of material and what part is caused by other conditions; it gives him a check on the extent to which he is being reimbursed for the work done by his department in repairing billable defects on foreign cars and a much more accurate knowledge of what the maintenance of his own cars—both that done at home and that done on other lines—is costing than is now generally available. The accounting or statistical department that places in the hands of the car department head such an analysis, gives him a new vision of the importance of the business aspect of his job—an aspect of which few heads of railroad departments now have any knowledge.

The important question is not what is the value of such control data, but how to secure it. A car department offi-

cer who may display an inclination to dig into such matters immediately comes into conflict with the accounting department. To this department such analyses not necessary to meet the requirements of the I. C. C. accounting classification, mean additional expense with no return. The car department head, having no facts to support his opinion that real tangible savings in the operation of his department can be effected by such studies, is poorly equipped to meet the argument of the accounting department. There the matter rests.

Apparently there are but two alternatives by which any improvement in this respect is to be effected. One is a complete schedule of accounts constructed in such a manner that it is suitable for detail control purposes to be imposed on the railroads by the Interstate Commerce Commission. The other is enough executives with a real vision of the possibilities of furnishing their department heads with adequately detailed control figures who will give such methods a sufficiently thorough demonstration to determine effectively their value. Until the question has been settled beyond a doubt the *Railway Age* adheres to the belief that detail analyses, such as have proved essential to the successful management of competitive industries, can also be successfully applied to the operations of the mechanical departments of the steam railways.

Books and Special Articles of Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington D. C.)

Books and Pamphlets

Altgeld of Illinois, by Waldo R. Browne. Chapters 12 to 16 discuss the Chicago strike of 1894, its inception, "inner history," issues and reactions. 342 p. Pub. by B. W. Huebsch, New York. \$3.00.

Great Northern Railway Company. Northern Pacific Railway Company. A Review of Their Operations in the Period 1916-1923, and a Discussion of Some of Their Most Difficult Problems. Includes comment on current conditions by the presidents of these roads. 131 p. map. Published by Wood Struthers, New York.

Principles of Railway Transportation, by Eliot Jones. Includes maps showing development of railroads by periods, and selected reading lists. 607 p. Published by Macmillan, New York. \$3.50.

The Story of Canned Goods, by James H. Collins. "Refrigerator cars are an outgrowth of canned meats," p. 155 et seq. A brief history of perishable freight services, and development of refrigerator cars, is included. 251 p. Published by Dutton, N. Y.

The Story of the Cape to Cairo Railway and River Route, from 1887 to 1922, compiled by Leo Weinthal. Contains many illustrations, maps and facsimiles. 4 volumes. Published by Pioneer Publishing Company, Ltd., London, Eng. 210 shillings. \$46.20.

Periodical Articles

Brains + Money = Lower Freights, by Robert S. Henry. Improvements in plant and service that are effecting economies in operation. *Nation's Business*, July, 1924, p. 19-22.

Physics and Civilization, by Arthur D. Little. "With the per capita tonnage steadily rising and a population as steadily increasing, the time is not far distant when no readily conceivable expansion of our transportation system will suffice to handle the traffic. . . . We are in consequence about to witness a gradual decentralization of industry." p. 40. *Atlantic Monthly*, July, 1924, p. 36-45.

Letters to the Editor

A Fast Train on the Great Northern

St. Paul, Minn.

TO THE EDITOR:

The article written by A. L. Bostwick and published in your issue of May 31 entitled Train Speeds in America is indeed interesting.

I feel it entirely proper to call attention to the mail train operated by the Great Northern between St. Paul, Minn., and Seattle, Wash., a distance of 1,793 miles at an average speed of 37.7 miles per hour. This train, in its run, crosses two mountain ranges—the Rocky mountains with a grade of 1 per cent and the Cascade mountains with a grade of 2.2 per cent.

The speed of this train from Minneapolis to Breckenridge, a distance of 204 miles, is 47.9 miles per hour and from St. Paul to Havre, a distance of 924 miles, it is 43 miles per hour.

It is apparent, considering the distance run that this train is the peer of any train west of the Mississippi river and indeed it excels many of the trains operated east of the Mississippi river.

J. C. ROTH,
General Superintendent of Transportation, Great Northern.

The Shipper's Interest in Depreciation

CHICAGO.

TO THE EDITOR:

The principles for finding value as used by the Interstate Commerce Commission undoubtedly appear complicated to the average layman. The shipper or other user of the railroad, being in this matter a layman, must, of course, trust the commission to protect his interests in the choice of those principles which are used in the valuation of the carriers.

Now in a job as big as that imposed upon the commission it is a curious fact that often the most vital point receives the least attention. This vital point in carrier valuation is the subject of depreciation and to illustrate the little attention it has received I quote the following statement by a member of the Interstate Commerce Commission on page 558 of Valuation Docket No. 26—The San Pedro, Los Angeles & Salt Lake: "The carriers, however, claim, in effect, that there is no depreciation in a railroad property so long as it is well maintained. To the shipper or other user of the railroad it is of no great importance whether or not this claim is sustained. If the carriers are right the amount needed for the 'fair return' will be greater, but the amount needed each year as protection against depreciation will be less."

Contrary to the above statement it is 16.4 times as important to the shipper as it is to the carrier to see that "this claim is sustained." Every dollar set aside for "protection against depreciation" must be paid by the shipper and the carrier—but the shipper pays 94¼ cents while the carrier pays only 5¾ cents.

Let us prove the figures. It is easy to understand that, revenue (what the shipper pays) = expenses + fair return (what the carrier gets), and under the law fair return = 5¾ per cent of value.

Now let

R = Revenue
E + D = Expenses, including Depreciation
V = Value

Then

$$R = E + D + .0575 V$$

Supposing now that we add a dollar to the "protection against depreciation." We must then deduct a dollar from value and the right side of the equation becomes:

$$E + (D + \$1) + .0575 (V - \$1)$$

$$\text{or—} (E + D + \$1) + .0575 V - \$0.0575$$

We have now added one dollar to expenses and taken 5¾ cents from fair return, so in order to maintain the equality we must add the difference to revenue and our equation becomes:

$$R + \$0.9425 = (E + D + \$1) + (.0575 V - \$0.0575)$$

So the carrier has only 5¾ cents taken from its fair return while the shipper, who pays all the revenue, has 16.4 times that amount added to his bills.

RAYMOND C. KRAMER,
Valuation Accountant, C. M. & St. P.

Requirements for Good Welding

Owosso, Mich.

TO THE EDITOR:

I wish to take exception to some of the statements made at the American Railway Association convention, recently held at Atlantic City, on welding, by some of the gentlemen taking part in the discussion of the committee's report on the subject.

As a practical welder of some years' experience and a member of the American Welding Society, I cannot agree with them entirely. It is quite true there have been numerous welding failures, but is it the fault of the process, welders, supervision, or the conditions under which it is done?

Several failures are mentioned, but doesn't it appear that there must have been something lacking in the supervision of a great many of them? Either they should not have been welded at all or else there is a clear case of incompetence or misunderstanding of the fundamental principles underlying the process involved. Welding has its limitations, but with proper supervision and competent welders a great many of the jobs described as failures, are successfully performed every day all over the country.

I have worked in a great many railroad and manufacturing plants and have yet to work under a welding foreman who is a practical welder. As a general rule he is a machinist, boilermaker or in fact anything but a welder, except perhaps a product of some welding school. Wherein is the similarity between boilermaking and welding? A great many shops are waking up to the fact that welding is a very highly skilled trade and is not learned in three weeks as one welding foreman informed me. Is it any wonder that welding is in the present condition in a great many shops? When welding has the proper supervision it is entitled to, including training of operators, theoretically and practically and the work performed by competent men it will be time enough to discount some of the failures and place the "onus" where it belongs. Eliminating a great deal of the welding done is one way of solving the problem, but why not start at the beginning by weeding out the incompetents?

One gentleman states that the gas process is best for fire-box work. Do the facts bear out that statement? Has he ever seen a guide for instance built up by the arc process fail as a result of that? I have never seen a sheet ruined by burning out staybolts, yet it is not allowed in a great many places.

Welding is entitled to at least an even break but judging by some of the comments on it by those under whose jurisdiction it comes, there will have to be considerable educational propaganda disseminated before that will come about. Mr. Wanamaker takes a very commendable stand on the matter.

S. J. MELVILLE.

Teach Courtesy by Example

LOUISVILLE, KY.

TO THE EDITOR:

I have read with interest your editorial of June 14 "To Appease Grouchy Patrons Without Joking." I have traveled about quite a bit in my time, and notwithstanding the rule "The customer is always right," which you refer to as in force in certain hotels, I have experienced just as much discourteous treatment in hotels as on steam or electric railways. I try hard at all times to keep in mind that human beings are very much alike everywhere; consequently one should not expect too much. Some of the railroads have been trying for the past few years to educate their employees to be courteous to their patrons, not only when they come in contact with them face to face, but also in handling matters through correspondence. I believe they are meeting with considerable success.

Employees find that the general public, like their fellow workers, are inclined to reciprocate kindness and courtesy. The patron of a railroad is entitled to just and courteous service, but he does not pay for the right to insult the employee any more than does a customer of a store pay for the right to abuse a clerk when he makes a purchase. There are some people who cannot purchase a ticket without having trouble with the ticket clerk. There are some people who cannot get a meal in a hotel or restaurant without abusing the waiters. In other words, there are some people so ornery that they seem to be afflicted with an incurable grouch, and must vent their spleen on someone. My advice to employees in dealing with such people is to treat them kindly, but to say as little to them as possible.

Generally speaking, kind and courteous treatment will win 'most anyone, and if an employee will cultivate a friendly spirit, he will find that he will be well repaid by having his own work made smoother. An employee should bear in mind that the corporation for which he works is *his* company. To handle a dissatisfied customer in a manner suggested by the New York Herald-Tribune would of course be the height of folly, regardless of the fact that the patrons of the roads are often unreasonable.

A. J. P.

Be Courteous to Subordinates

CHICAGO.

TO THE EDITOR:

Some time ago you published some letters written by an alleged railroad official's road secretary which I, from several years' personal experience in that capacity, consider was very unjust to "the boss" if it intended to typically represent officials who employ road secretaries.

There is, however, an asset which many successful railroad officials neglect to cultivate and that is a pleasing personality to those whom they do not consider their superiors or equals. By that neglect they injure themselves and the railroad in that they inspire disloyalty and breed discord—both foes of efficiency.

Every railroad man has seen some employee gradually rise to a high official position and noticed how with advancement his attitude changes towards his old associates. His former cordiality disappears and in its place there is substituted a tolerant air which often gives place to blunt discourtesy. On the street some of them fail to see a well-known subordinate as he passes, but their eyesight is wonderfully keen in detecting the president or vice president of their road fully a block away on that same street. The only inference left for the subordinate is that he is intentionally ignored and consequently entertains a very natural resentment.

Note also the attitude of this official when a subordinate, with real business to transact, tries to see him. His manner

is often most ungracious, and, though not half so busy as the poor subordinate, he begrudgingly gives him the few minutes necessary. The way this busy subordinate has to wait for an audience with his chief, because his stenographer is closeted with him, is very irritating. Contrast this with a call from one of this official's pals or superiors. No indeed, he is not busy—the stenographer is very curtly dismissed and an hour's visit with jokes and laughter is quite in order.

By many men this course is often considered the proper official etiquette—inconsiderate and often brutal as it is. These men evidently do not realize the bad example they set by this ungentlemanly conduct nor how the induced irritation is passed along down the line to the detriment of the service.

AN OBSERVER.

How Legal Restrictions Prevent Exercise of Business Principles

CHICAGO.

TO THE EDITOR:

The public has handicapped the railroads in imposing law upon law and regulation upon regulation. When these laws and regulations react upon the shipper, he abuses the railroads, forgetting that he is one of those to blame, and that instead of heaping abuse upon the railroads, he should write his congressman and senator and tell them what has happened to him, and urge that legislation be enacted that will allow the railroads to get back to the exercise of business principles.

A specific example is the case of a shipper who on December 21, 1920, consigned a carload of pine box shooks from Spokane, Wash., to Waterloo, Iowa. The shipment arrived at destination January 13, 1921, and the freight charges as assessed were paid on the same date. A zealous clerk in the review department of the freight auditor's office of the railroad issued an undercharge correction on July 15, 1921, which the consignee who had paid the original freight charges paid on July 20, 1921, six months after the delivery of the shipment. These charges were in turn billed back against the original shipper. The original shipper checked the tariff and found that the freight charges as originally paid were correct, and no undercharge existed. On May 3, 1923, he wrote the freight auditor and told him of the error and at the same time filed a claim for the refund of the improperly collected undercharge. The freight auditor checked the charges and admitted that the shipper was correct, but told him he was very sorry but could not refund these improperly collected charges because, under the law governing the railroads, the claim had become outlawed.

On receipt of this advice the shipper naturally became enraged at the action of the railroad in declining the claim for refund, and wrote the traffic representative in his district abusing the railroad in general, and the accounting department in particular. The traffic representative sympathized with him and advised that he felt the shipper was right and there was no justification for the action of the accounting department. The traffic representative then took the matter up with the vice-president in charge who, on the basis of common sense and justice, felt the shipper was right. His investigation developed that the freight auditor was complying with a rule issued by the legal department.

The vice-president then took the matter up with the general counsel who, after looking at the case from all angles, was finally convinced that, independent of business principles and the merit of the claim, the railroad could not refund the amount without violating the law, a decision in a similar case having been rendered by the court.

A RAILWAY OFFICER.

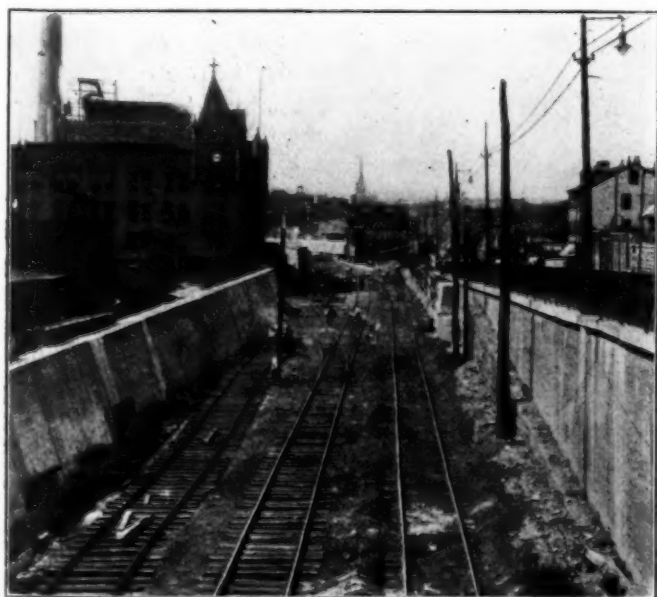


The Section Past the Heinze Plant—The Industrial Track is Between the Retaining Wall and the Plant

Pennsylvania Completes New Four-Track Work

Improvements at Pittsburgh Include Grade Separation and Additional Facilities for Through Traffic

IN ORDER TO PROVIDE two tracks for operation as a through line for east and westbound traffic around Pittsburgh, Pa., the Pennsylvania has recently carried forward a project of four tracking and grade separation, known as the



East of the Heinze Plant, Showing Temporary Lead to the Industrial Track

Pittsburgh Northside improvements. This work starts at the junction of the Conemaugh division and the Pittsburgh, Ft. Wayne & Chicago line and follows generally along the north

side of the Allegheny river to Sharpsburg, a distance of about 6 miles. Grade crossing elimination was involved on only the first 1.5 miles.

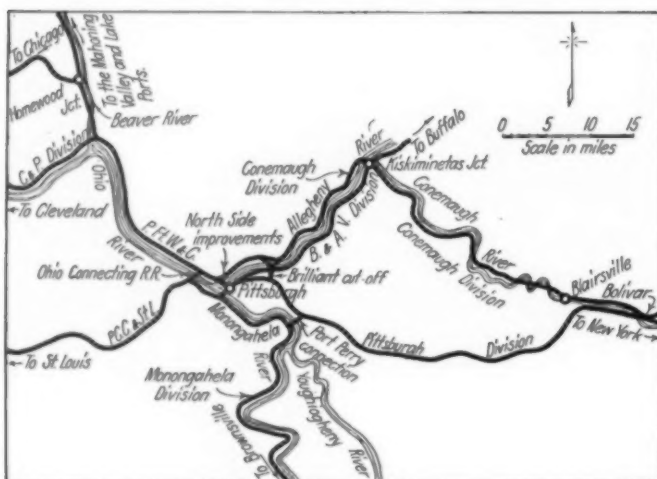
This improvement relieves an extremely heavy traffic line formerly having two tracks and passing through a congested (from a traffic standpoint) industrial district. Three troublesome grade crossings are eliminated as well as a restriction grade of 1.68 per cent westbound. The grade separation is in the form of a fill between retaining walls with maximum grades of 0.5 per cent compensated for curvature. Related to this work is a large double-track, steel and concrete jumpover bridge to carry the Baltimore & Ohio's main line over the new four tracks, the construction of which, although a project of the Baltimore & Ohio, is being handled by the Pennsylvania. Another improvement which has a direct bearing on these improved operating facilities is the construction of a new engine terminal and classification yard at Sharpsburg to replace an obsolete terminal formerly located opposite Herr's Island and about midway of the present four track work.

The west end of the Conemaugh division terminates at Ft. Wayne junction on the north of the Allegheny river and approximately opposite the Pennsylvania Union station. This part of the Conemaugh division passes through an important industrial section which receives and originates a very heavy traffic, resulting in a large number of local freight and shifting movements. It also forms an important line for the movement of through east and westbound traffic, and in addition serves as an interchange point with the Baltimore & Ohio, which operates over the Pennsylvania's tracks for a short distance after crossing the Allegheny river. Up to the time the present improvements were undertaken, this was a two-track line with numerous sidings and industrial tracks, dropping down from Ft. Wayne junction eastbound on a 1.68

per cent grade and then passing in or along a city street and across a number of other streets on about a level grade for approximately 1.5 miles out of Ft. Wayne junction, after which it followed generally along the river with only one grade crossing until Sharpsburg was reached. This crossing is now being eliminated by the construction on the part of the city of a new highway bridge across the river.

With the completion of the cities' Sixteenth Street bridge over the river, the vehicular traffic on Chestnut street, with which the bridge connects, became a serious problem. Another complication was a spur leading off the eastbound main to Herr's Island, where the stock yards are located and where

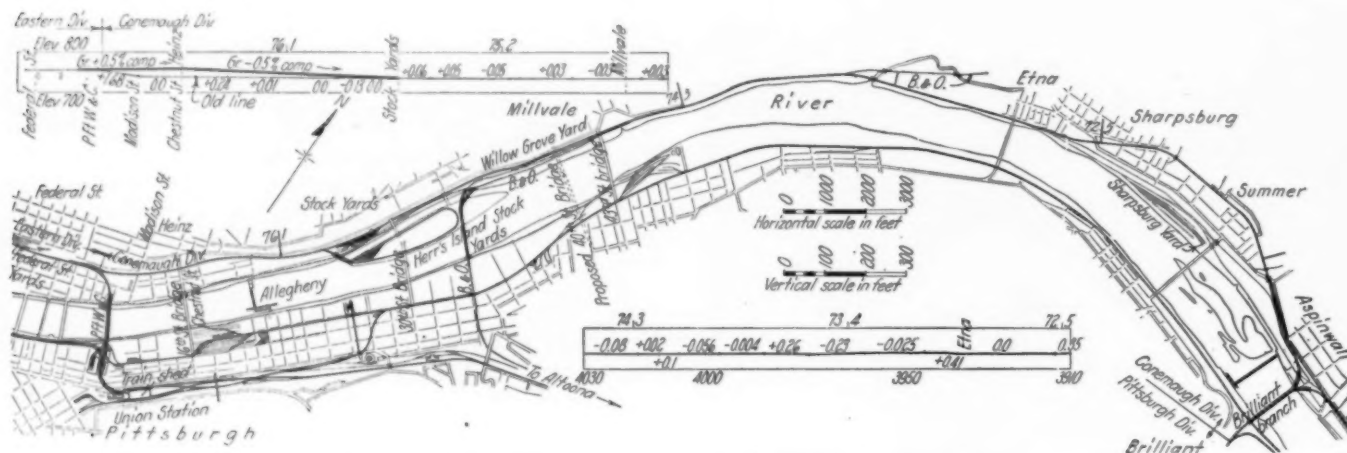
street, the line descends on a 0.5 per cent grade to about Thirtieth street or approximately 1.5 miles from the junction where it joins with the old grade and alignment and continues on this grade and alignment. Near Sharpsburg, connection



Map Showing Pennsylvania Lines Around Pittsburgh

all stock in transit is fed and watered. This track has a stub end and as this traffic is all eastbound, it required a back-up movement out on to the main line. The old engine terminal was located in this section opposite Herr's Island and the light engine movements also contributed to the general operating difficulties of the north side line. The following figures are indicative of the traffic density in this section:

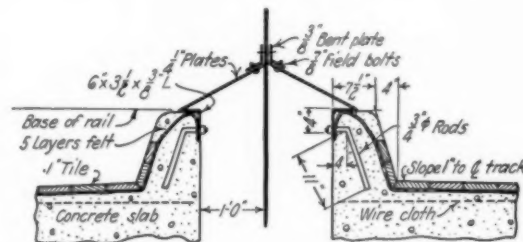
	Eastbound	Westbound
Through passenger trains.....	1	1
Local passenger trains	6	6
Through freight trains	35	39
Local freight trains	12	13
Shifting movements	85	38



General Layout, Showing Location of Northside Improvements

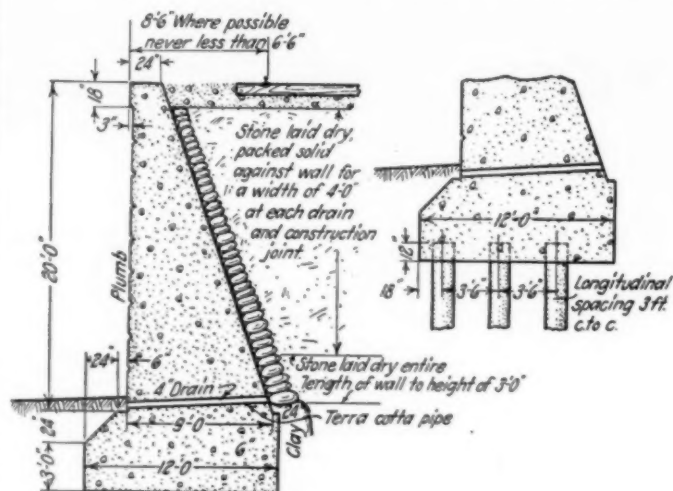
The new four-track line commences at a point east of and near Ft. Wayne junction and rises from that point on a 0.3 per cent grade compensated for curvature until Chestnut street, the controlling point, is reached. From Chestnut

largely for freight passing through Pitcairn yard. An equally important route is provided by the continuation of the movement up the river and across to Kiskiminetas Junction and then to a connection with the main line to New York at



Method of Closing Space Between Girder Webs and Slabs

is made with the new yards at that point and with a double track line that passes to the north of the yard and around the town. This latter line and the north end of the yard connect with the Brilliant branch, which is a cut-off across



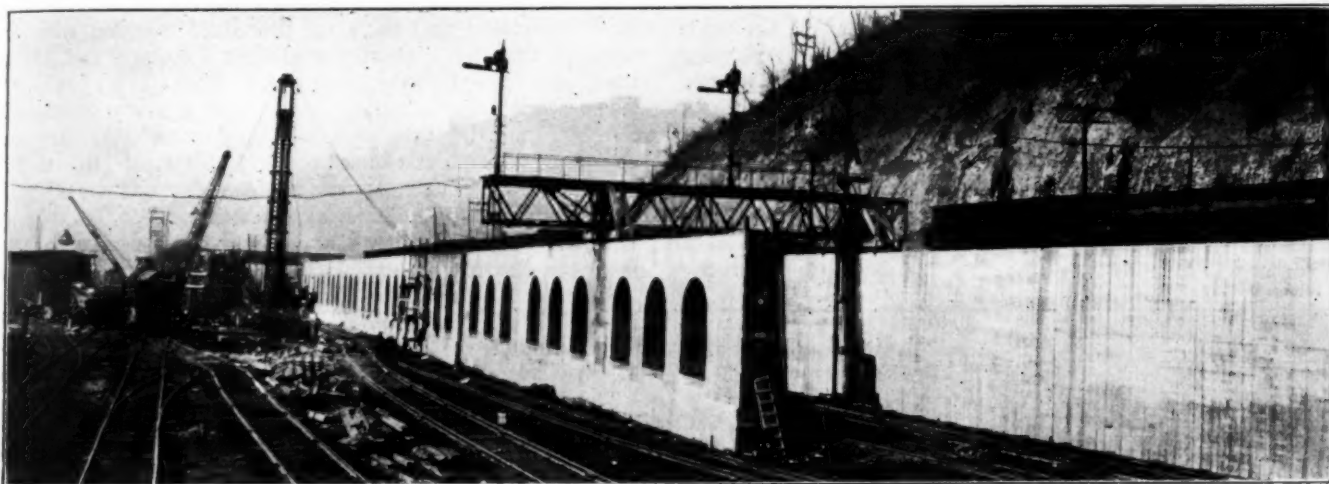
Typical Section of Retaining Wall

the Allegheny river leading from the Conemaugh division near Aspinwall to the Pittsburgh division at East Liberty. This provides one route around the heart of Pittsburgh,

Compitt Junction. This route is primarily one of through movement not requiring reclassification in the Pittsburgh district.

The old line from Thirtieth street to Sharpsburg has grades varying from 0.25 per cent to zero and curvature up to about four degrees. The maximum grade on the new work is, as stated, 0.5 per cent and the maximum curvature is four degrees. This new work is all in the form of eleva-

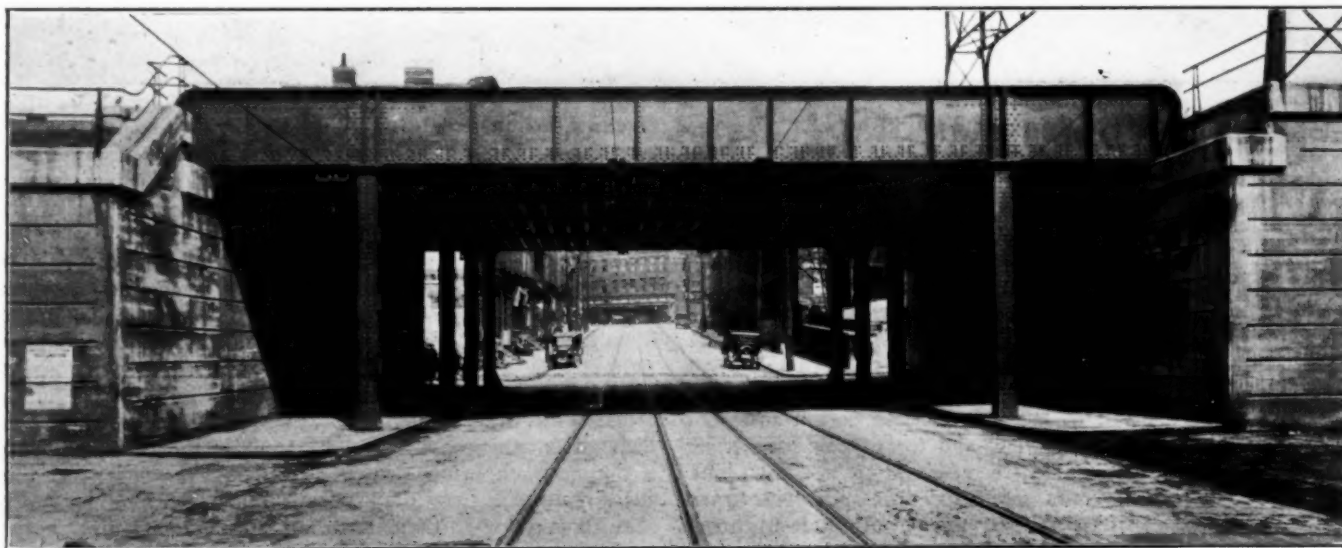
concrete abutments, and utilizing concrete slabs reinforced with I-beams for a ballasted deck. These slabs were designed to permit the complete inspection of the girders and of the riveted connections with the floor structure. The concrete was poured around the I-beams for a width of 11 ft. or 2 ft. less than the spacing of the girders, the upper surface being sloped to the center line of the track and from the center each way to the abutments. The outer edges of



A Part of One Wing Wall and the Center Pier of the B. & O. Jumpover Bridge

tion between concrete retaining walls, with plate girder bridges over undercrossings at Madison avenue, Chestnut street and Heinz street respectively. A clearance of 16 ft. is provided at Chestnut street and 14 ft. at the other two. The retaining walls are of the gravity type of varying section according to the necessity and up to a maximum of 25 ft. in height and 12 ft. in width at the base. The outer surface is plumb and is scored horizontally throughout and verti-

the slab were brought up to form curbs. The entire surface of the slab and a part of the curb, was given a waterproof coating of five layers of felt protected by a one-inch layer of tile, the curb being recessed so that the surface of the tile came flush with the surface of the curb. Where the floor beams were 13 in. deep or less, the concrete was brought flush with the bottom of the steel; where the depth was greater than this the beams were encased in concrete



Chestnut Street Was the Controlling Point in the Grade Separation

cally at the expansion joints. Part of the alignment lies over the bed of the old Penn canal and in this section the retaining walls were carried on concrete piling of the Simplex type. Altogether about 107,000 lin. ft. of piling were used under the retaining walls between Heinz street and the connection to Herr's Island.

The undercrossings are plate girder spans supported upon steel column and girder construction at the curbs and upon

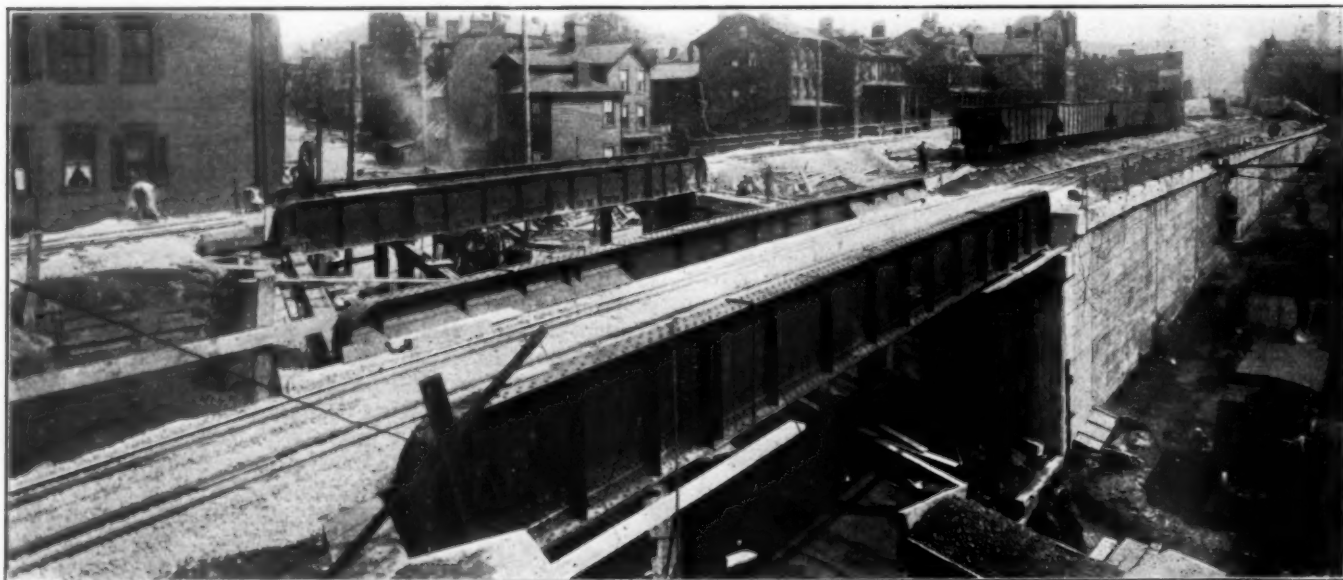
as usual but forms were used between them to reduce the amount of concrete otherwise required. An interesting feature of these crossing structures is the use of a removable steel plate which covers the opening over the sidewalks between the concrete slab and the plate girders. These plates consist of $\frac{1}{4}$ -in. stock riveted on one edge to angles which in turn are bolted to the girders with a lead gasket between. This plate slopes down from the girder to the

inner edge of the concrete curb of the bridge deck and drains all rain water into the deck of the structure. The ends of the plates extend 2 ft. beyond the sidewalk curb line and are closed with $\frac{1}{4}$ -in. plates which extend down to the top of the I-beams. The use of this plate has obviated the usual construction of an independent shed or covering over the sidewalks and has proven entirely satisfactory. They are easily removed for painting or detailed inspection of the steel work, and as easily replaced.

The work of elevating the tracks was carried on under traffic and, because of the congested area in which the work had to be done, represented a difficult problem. For the greater part of the work combined standard and narrow gage construction tracks were laid along the outside of the retaining walls. The concrete was mixed at a central plant situated on Chesboro street, one block west of Chestnut street, and was distributed from that point by means of narrow gage cars. The work of pouring the forms was performed with locomotive cranes, operating on the standard gage tracks and both walls were carried forward practically

crossings the outer sections of the abutments were poured and the two outside girder spans placed, leaving an opening between through which two tracks could be operated. The first street was then closed and the two tracks raised under traffic to the new grade with a run-off coming down to the old grade before the next street crossing. As soon as the new grade was reached the traffic was diverted to the two outside tracks, after which the filling in the streets was removed, the remainder of the abutments poured and the other two girder spans placed. Following this, the next street was closed and the same procedure repeated with the exception that for a short period both Chestnut and Heinz streets were closed at the same time.

The work from Thirtieth street east consists essentially of rebuilding the existing tracks and connecting up and rebuilding the side tracks with new 130-lb. rail laid on tie-plated creosoted ties. While not directly a Pennsylvania project, another piece of work of interest connected with this northside improvement is a jump-over bridge for the Baltimore & Ohio east of Millvale. This is a part of an



Two Outside Spans in Operation While Abutments Between Tracks Are Completed and Street Below Opened for Traffic

simultaneously, the concrete for the walls on the far side of the tracks being elevated and chuted across to a receiving hopper on that side. This plan of procedure was followed generally on the work with the exception of the retaining wall east from Heinz street and along the Heinz plant where the narrow gage construction tracks were laid inside the wall and the cranes sandwiched between the freight cars on the industrial track serving the plant. This complication necessitated the maintaining of an absolute block through this section on account of lack of space to permit sufficient clearance between the main track and the narrow gage track on which the concrete was delivered from the central plant. About 100 cars a day are set in on this industrial track with about three or four shifting movements a day, during which it was necessary to pull the cranes with the cars and cut them in again with each set-up.

Following the completion of the retaining walls, the tracks were raised to grade by filling under traffic, the change being made in sections during which the cross streets involved were progressively closed and opened to vehicular traffic. Two tracks were kept open at all times for the movement of trains and in order to keep the operating conditions, so far as grades were concerned, as nearly as they were before the work started, the grade of the run-off from the new level to the old was kept at or below the original 1.68 per cent entering Ft. Wayne junction. At the street

improvement program of the latter road in which is also involved a short section of new line along the foot of the hills which parallel the river at this point. At the present time, the Baltimore & Ohio has an operating agreement with the Pennsylvania and uses the latter's tracks in making a crossing, as well as in making an interchange of traffic. This has resulted in a very dense traffic at this point and has presented a number of drawbacks to both roads from an operating standpoint which would have been further intensified with the completion of the four-track work. These difficulties are now being eliminated by the construction of a double-track bridge which, because of the sharp skew of its crossing, has resulted in an unusually long structure. The Baltimore & Ohio parallels the Pennsylvania before and after making this crossing and because of this and other restricting conditions it was necessary to use a crossing angle of 12 deg. 30 min. This sharp skew, in conjunction with the width of the crossing, a fill on one side and higher natural ground on the other, resulted in a total length from extreme to extreme of wing walls of 1,040 ft. Concrete has been used for the abutments, the wing walls and the center pier. The superstructure is of I-beam and concrete slab construction.

The North side improvement program has been carried out under the direction of the engineering department of the Pennsylvania, A. C. Shand, chief engineer, with Geo. Nau-

man, assistant to the chief engineer and T. P. Watson, assistant engineer in direct charge of the work. The contractors on the work were as follows: Track elevation, Ft. Wayne Jct. to Thirtieth street, J. F. Casey Company, Pittsburgh, Pa.; four tracking, Thirtieth street to Sharpsburg, A. L. Anderson & Bros., Inc., Altoona, Pa.; B. & O. jump-over bridge, substructure, Wilson & English, New York; and superstructure, Vang Construction Company, Cumberland, Md.

Accident Investigations; July-December, 1923*

WE HAVE RECEIVED quarterly summaries No. 17 and No. 18 of the accident investigations made by the Bureau of Safety of the Interstate Commerce Commission covering the quarters ending respectively on September 30, 1923, and December 31, 1923; and they are abstracted below. Summary No. 17, being now several months old, is abstracted very briefly; the number of casualties and the details of cause being in most cases omitted. Also, those collisions and derailments due to well-known and uncomplicated causes; and those occurring in yards or on electric (interurban) lines are as a rule cited only by index numbers.

In the tabular statement *B* indicates boiler accident (explosion); *C*, collision and *D*, derailment. The reports of boiler explosions are not printed in the quarterly, unless they cause serious derailment—they come from the Bureau of Locomotive Inspection, A. G. Pack, chief inspector.

Summary No. 17

TRAIN ACCIDENTS INVESTIGATED—JULY, AUGUST AND SEPTEMBER, 1923

970	A. T. & S. Fe	Domingo, N. M.	July 3	D
971	C. R. I. & Pac.	Harrah, Okla.	July 3	B
971	Nor. Pacific	Tacoma, Wash.	July 5	D
972	Pennsylvania	Harrison, N. J.	July 11	C
973	Southern	Larkinsville, Ala.	July 13	D
974	Los. Ang. & Salt Lake	Sandy, Utah	July 15	D
975	A. T. & S. Fe	Cajon, Cal.	July 15	D
976	Central of N. J.	Carteret, N. J.	July 19	D
977	Pennsylvania	Crawfordsville, Ind.	July 19	D
978	Nashville Terminals	Nashville, Tenn.	July 31	D
979	A. T. & S. Fe	Fowler, Col.	Aug. 13	C
980	Western Maryland	Barnum, W. Va.	Aug. 16	D
981	N. Y., N. H. & H.	Walpole Hts., Mass.	Aug. 19	B
981	Detroit United	Edmore, Mich.	Aug. 28	C
982	Norfolk & W.	Reanoke, Va.	Sept. 10	D
983	N. Y., N. H. & H.	Readville, Mass.	Sept. 11	D
984	Union Pacific	Rawlins, Wyo.	Sept. 12	C
985	L. & N.-A. & St. A. B.	Cottondale, Fla.	Sept. 16	C
986	C. & Ohio	Whitman Junc., W. Va.	Sept. 20	C
987	A. T. & S. Fe	Hot Spgs. Junc., Ariz.	Sept. 20	D
988	Boston & Maine	St. Johnsbury, Vt.	Sept. 23	D
989	Cleve. A. & M. Val.	Atwater, Ohio	Sept. 25	C
990	Mo. & No. Ark.	Lydalisk, Ark.	Sept. 26	C
991	C. B. & Q.	Lockett, Wyo.	Sept. 27	D
992	Southern	Cleveland, Tenn.	Sept. 28	C

970. Excessive speed; engineer killed; physician believed engineer had died of heart shock before the derailment. Reported in *Railway Age* November 24.

971. Landslide followed by fire. Inspector suggested more effective measures be taken to control the flow of water from hidden springs in hill at side of road.

972. Express train ran past automatic signals; inspector called for explanation of absence of automatic train stops, these being in use on adjacent sections of the road.

973. Broken rail; transverse fissures; rail in service 18 years.

974. Washout, 1 a. m.; abnormal flow of water from an irrigation ditch.

975. Runaway train on steep grade; inspection of air

brakes inefficient; rules concerning testing of brakes had been habitually neglected.

977. Excessive speed; locomotive running backwards; absence of swash plates in tank believed to have made tender unsteady.

979. Engineman and fireman misread name of station in meeting order. Reported in *Railway Age* of October 6, 1923.

980. Excessive speed (35 miles an hour on 15 deg. curve).

983. Excessive speed. Engineman believed to have been suffering from a physical disorder of the brain. Reported in *Railway Age* of November 24.

984. Runaway freight train on steep grade; rules requiring tests of air brakes found to have been habitually disobeyed.

985. *Cottondale, Fla.*, September 16. Crossing of the Louisville-Nashville and the Atlanta & St. Andrews Bay.—Eastbound passenger train No. 1 of the L. & N., moving at a speed estimated variously from five to 25 miles an hour, ran into northbound passenger train No. 6 of the A. & S. A. B., causing the death of three passengers and the injury of 43 passengers and two employees. The crossing is at right angles. The L. & N. train struck the sixth coach in the other train and demolished it, but did no damage to other cars and was so little damaged itself that it resumed its trip after about three hours' delay. The collision occurred about 10:45 p. m. The L. & N. track is straight for 10 miles. The crossing is not signalled but there is a warning board a mile back and a whistle board 1,747 ft. back; also a stop sign 106 ft. back. The engineman gives no clear explanation of his failure, saying that after running a short distance past the whistle board, he "became temporarily lost," not being able to locate the station because of the presence of the standing train on the other road, which obscured the platform lights (of which there were six on the L. & N. side and two on the other side). The cars in the standing train had electric lights lighted. The headlight of the locomotive of train No. 1 had failed twice, and the bulb temporarily in use was not full strength. Inspection and test of the air brakes showed nothing wrong, and the inspector finds it difficult to understand why the engineman failed to have his train under control. This engineman had been in service 33 years.

987. Excessive speed on a line with which engineman was not familiar; absence of pilot condemned by inspector.

990. Engineman misread order; conductor at fault for not reading the order to the engineman.

991. Flood; 24 passengers and 7 trainmen killed. Reported in *Railway Age*, December 8.

992. Negligence in connection with meeting order; also in relation to manual block signal rules. Reported in *Railway Age*, November 24.

Following are abstracts of the two reports on boiler accidents:

Chicago, Rock Island & Pacific, Harrah, Okla., July 3.—Locomotive 2132, hauling a freight train and moving at about 20 miles an hour. An accident to the boiler caused serious injury to the engineman and the fireman. A flue pocket blew out of the front flue sheet and the escaping steam and water blew flames and firebox gases back into the cab. This engine had just been turned out of the shops, after receiving general repairs, and there were 48 flue pockets in the front flue sheet. These were put there to close holes from which flues had been removed in connection with changes in the firebox flue sheet. The inspector finds that these pockets had not been prossered and they were held in place only by friction; and it was found that four other engines had been repaired in the same way. The report says the necessity for properly enlarging flue pockets inside the sheet is so well recognized that "comment hardly seems necessary; the workmen and the officers cannot be too strongly

* Government accident investigations, 1921-1923. Preceding quarterly reports were abstracted in the *Railway Age* as follows:

1921—No. 7, July 2, 1921, p. 35	1922—No. 12, Sept. 2, 1922, p. 426
No. 8, Sept. 3, 1921, p. 459	No. 13, Dec. 30, 1922, p. 1239
No. 9, Dec. 10, 1921, p. 1145	No. 14, Mar. 24, 1923, p. 815
No. 10, June 10, 1922, p. 1343	1923—No. 15, July 21, 1923, p. 117
1922—No. 11, June 17, 1922, p. 1483	No. 16, Sept. 15, 1923, p. 479

censured for such careless and indifferent methods." The Bureau does not object to a reasonable number of flue pockets in the front flue sheet when properly belled and prospered.

New York, New Haven & Hartford, Walpole Heights, Mass., August 19.—Locomotive No. 409, drawing passenger train No. 3344, was wrecked by the explosion of its boiler, and the engineman was fatally injured. The fireman and two passengers were less severely hurt. The inspector says that this accident was primarily due to the failure of the crown sheet, because of its having been overheated due to low water; but the firebox had been extensively patched and this, with the failure of autogenously welded seams and two broken crown stays, is held to have contributed to the violence of the explosion. A series of sworn reports covering the condition of this firebox, calling it in good condition, are held to have been deceptive. "It certainly could not be said that a firebox patched so much as this was could be termed in good condition, nor is it likely that numerous leaks reported in August could all have developed after the last report" which was dated August 7.

Summary No. 18

TRAIN ACCIDENTS INVESTIGATED—OCTOBER, NOVEMBER, DECEMBER, 1923

993	Great Nor.	Litchfield, Minn.	Oct. 1	D
994	Morgan's L. & T.	New Iberia, La.	Oct. 2	D
995	Louisville & Nashville	Biloxi, Miss.	Oct. 4	C
996	Oregon Short Line	Waterfall, Wyo.	Oct. 6	C
997	Phila. & Reading	Hershey, Pa.	Oct. 11	D
998	Pennsylvania	Hiespire, Pa.	Oct. 14	C
999	N. Y., N. H. & H.	Medfield Junc., Mass.	Oct. 22	D
1000	Norfolk & Western	Bristol, Va.	Oct. 27	C
1001	Phila. & Reading	Nictown, Pa.	Nov. 1	D
1002	Ches. & Ohio	Marion, Ind.	Nov. 5	C
1003	St. Louis-San Francisco	Meadows, Ark.	Nov. 11	D
1004	Wabash	Attica, Ind.	Nov. 12	C
1005	Louisville & Nashville	Vulcan, Ala.	Nov. 15	C
1006	Louisville & Nashville	Elsiecoal, Ky.	Nov. 16	C
1007	Phila. & Reading	Annyville, Pa.	Nov. 21	D
1008	Mount Hood	Hood River, Oregon	Nov. 23	D
1009	Del., Lack. & Western	Paradise, Pa.	Nov. 25	C
1010	Western Md.	Williamsport, Md.	Nov. 27	C
1011	Atlantic Coast Line	Nahunta, Ga.	Nov. 28	C
1012	St. Louis-San Francisco	West Tulsa, Okla.	Nov. 29	C
1013	Southern Pacific	Kirk, Oregon	Dec. 3	C
1014	Wabash	O'Fallon, Mo.	Dec. 5	D
1015	Pennsylvania	Columbus, Ohio	Dec. 7	D
1016	New York Central	Forsyth, N. Y.	Dec. 9	C
1017	Missouri Pacific	Amboy, Ark.	Dec. 15	C
1018	Virginian	Lively, W. Va.	Nov. 26	C
1019	Virginian	Elmore, W. Va.	Dec. 5	C
1020	Nash., C. & St. Louis	Kennesaw, Ga.	Dec. 22	D
1020	Central, N. J.	Glen Onoko, Pa.	Dec. 22	C

994. *Morgan's Louisiana & Texas*, New Iberia, La., October 2nd, 8:45 p. m.—Westbound passenger train No. 1, a locomotive and eight cars, running on the eastbound track, was thrown off the track by a derail at the approach to the crossing of the Iberia, St. Mary's & Eastern Railroad, about a mile east of New Iberia Station; and the locomotive was overturned and the fireman killed. One other employee was injured. A dwarf signal, situated between the two main tracks, was set against the train but this was disregarded by the engineman. He claimed that the light of this signal was burning very dimly, and also that he was misled by the clear indications of the distant and home signals on the westbound track, which had been cleared for him. The signalman in the interlocking tower had cleared these signals because, having no telegraph or telephone communication, he was in ignorance of the fact that No. 1 was not running on its regular track. He had seen No. 1 at a distance; and he said that, because of the blinding effect of the headlight, he could not tell on which track the train was running; but the government inspector holds that if he had been paying proper attention he could have discovered that the train was on the other track in time to have thrown the derail, which would have allowed the train to pass in safety. This is a double-track line but no block signal system is in use on it. The train was diverted from the westbound track because that track was in use, west of Iberia station, for loading a circus; but the circus train was not in sight from the signal tower. The engineman claimed that the crossing

signals were cleared for him after he had sounded the whistle for the crossing, while the towerman declared that he cleared them when the train was more than three miles distant. The report concludes with the statement that (a) undoubtedly greater safety would be provided by installing telegraph or telephone communication in the tower and (b) that the accident "again directs attention to the need of automatic train control"; though as to whether automatic stops should be provided throughout the whole division for movements against the current of traffic, nothing is said.

995. *Louisville & Nashville*, Biloxi, Miss., October 4, 7:25 p. m.—Northbound passenger train No. 134, backing into a sidetrack, was run into by southbound passenger train No. 1 which approached at uncontrollable speed and struck the opposing train at about 25 to 35 miles an hour. The locomotive of No. 1 was tipped over to the left and was turned around, and the engineman was killed. Five passengers, two mail clerks and four employees were injured. The eastbound train was superior by direction and was backing into the sidetrack (instead of entering at the south end) because it had been thus instructed by the meeting order which had been issued by the dispatcher. The rule says that when a train thus moves beyond the switch, to back in, protection must be afforded as required by the flagging rule; but all hands seem to have agreed in testifying that in a case like this no flagging was required. The line at this point is only slightly curved. Both trains had good headlights and yet no one on the northbound train seems to have seen the southbound until it was practically upon them. The engineman of No. 1 had sounded the whistle less than half a mile to the north, which indicated that he understood that he was to meet No. 134 at Biloxi. There was no doubt about his having received the meeting order as otherwise he would not have been running to Biloxi against a superior train. The fireman had noticed nothing wrong with the engineman. He thought it queer that steam was not shut off approaching Biloxi, but he said he supposed the engineman knew what he was about. The fireman could not see the northbound train from his side of the cab. The dispatcher explained that if No. 134 had entered the siding at the other end, it would have been necessary, in backing out, to pass over an important street crossing. The weight of evidence indicates that the engineman had not applied the brakes at all before striking the other train.

This section of the L. & N. has no block system, though there are 32 scheduled trains on the timetable. Traffic of such density, on a single track line, says the report, fully warrants the installation of a block signal system.

996. *Oregon Short Line*, Waterfall, Wyo., October 6.—A westbound freight train, extra 2545, ran past the point where it should have waited for eastbound extra freight No. 2536 and collided with the eastbound while moving at about eight miles an hour, the other train moving considerably faster. The engineman of the westbound and the fireman of the eastbound train were killed and three other trainmen were injured. There was a dense fog at the time, and the view from either train to the other was very short. The westbound engineman had received an order giving him right over eastbound extra 2539, which was behind 2536, but it is not known whether he read the order correctly. This order had been taken by a brakeman from the dispatcher over the telephone while the train was waiting on the sidetrack and the conductor had not seen it. The line, single track, is equipped with automatic block signals and the eastbound train had run past a stop signal. The report gives a long account of negligence on the part of a half dozen men. The brakeman who took the order by telephone had forgotten the engine numbers of the eastbound trains and therefore did not know whether the order which he had written gave time over the first or the second eastbound extra. The conductor of the westbound train made no effort to learn why his engineman was moving out of the

sidetrack (without authority, so far as the conductor knew) and the fireman made no attempt to acquaint himself with the contents of the order. The conclusions of the inspector again refer to the need of automatic control apparatus with quotations from the records showing cost of collisions during past years and the results of the investigation of collisions by the commission for 15 years. From January 1, 1906, to December 31, 1921, 26,297 collisions—apparently all occurring on main lines—resulted in the death of 4,326 persons and the injury of 60,682; with a total damage to cars, locomotives and roadway of \$40,969,663. The commission estimated in its last annual report that of the 82 collisions investigated during the last fiscal year, 91 per cent probably would have been prevented by the use of an automatic train control system; and in this 91 per cent of collisions, 189 persons were killed. "The accident here under investigation is but another in the ever lengthening list of accidents which could have been prevented," etc.

998. *Pennsylvania*, Highspire, Pa., October 14, 3 a. m.—Westbound passenger train No. 3, moving at from 5 to 10 miles an hour, in a dense fog, was run into at the rear by westbound extra 3379, consisting of 12 express cars and a caboose, which was moving at from 30 to 40 miles an hour. Train No. 3 was pushed forward about 300 ft. and its rear car was badly damaged. Fourteen passengers and five employees were injured. The engineman of 3379 admitted that the collision was due to his failure to see automatic block signal 985 which he had passed about 4,230 ft. east of the point of collision. He claimed that signal 975, about 4,435 ft. farther back, was clear. The flagman of No. 3 had thrown off a fusee but the engineman says that he did not see it. He did not see the markers on train No. 3 until flame from the stack of a coke oven near the track lighted up the atmosphere; but at this time he was still moving at about 50 miles an hour. The engineman could not explain how he had passed signal 985 such a great distance without being aware of the fact. The inspector blames the flagman for only partially complying with rule 172 which requires that fusees must be thrown off at proper intervals when the view is obscured. His train had been running at low speed for about 10 minutes yet he did not throw off the fusee until it had traveled about $2\frac{1}{2}$ miles after the speed began to be reduced. The report directs attention to the need of automatic train control.

999. *New York, New Haven & Hartford*, Medfield Junction, Mass., October 22.—A northbound freight train, consisting of two locomotives and 27 cars, was thrown off the track at an open derail approaching the crossing of the Midland division, and the leading locomotive was overturned. This and the other locomotive, together with five cars, were piled up in a length of 125 ft. The engineman of the leading engine and a brakeman riding on that engine were killed and four other employees were injured. The train had passed a distant and a home signal set against it. The derail was open because of the presence of a passenger train on the Midland division which would have been struck in the middle, by the freight, but for the derailment. The freight approached the crossing on a descending grade and the inspector believes, although the evidence was conflicting, that no air brake application had been made, at least not until the very last moment, when it was too late. The inspector believes the freight was running fast, although the trainmen made low estimates of the speed. The engineman was familiar with the line and the location of the signals; had had no trouble with the air brake, and was seen to look up as he passed the home signal; and the inspector cannot think of any explanation for his failure to obey the signal.

1006. *Louisville & Nashville*, Elsiecoal, Ky., November 16.—Collision between southbound freight No. 29 and northbound freight No. 30, damaging the locomotives and wrecking several cars. The engineman of No. 29 and a

brakeman of No. 30 were killed and seven other employees were injured. A train order under which train 29 should have waited for the northbound train at Blackey was not delivered to the southbound train. The dispatcher claims that he sent the order to Blackey, while the operator there denies having received it; other evidence is also conflicting, and the inspector is unable to settle the question of veracity. After Dispatcher McClanahan had written the order, he went off duty and the order (containing other movements and addressed also to other trains) was transferred to Dispatcher Farmer; and Farmer admitted that he overlooked this item in the order.

The ordinary number of trains over this section of the road is 16 a day and the report says that the traffic "fully warrants the installation of a block signal system. . . . This or an automatic train control system would undoubtedly have averted this collision." Dispatcher Farmer had held that position only since March, 1923, but he had had long experience as an operator. McClanahan had been a dispatcher six years; but as to both dispatchers the report says that their records were "Not good"; but no details are given. The operator to whom McClanahan asserted he had sent the order had been in the service five years.

1007. *Philadelphia & Reading*, Annville, Pa., November 21.—Westbound freight train extra 1745 was derailed by a broken rail and a part of the wreck fouled the eastbound main track; an eastbound passenger train, No. 194, moving at about 60 miles an hour, ran into the derailed cars and was wrecked. The fireman and the baggageman of the passenger train were killed as was also one passenger; and 47 passengers, 1 news agent and 2 employees were injured. The commission issued a report on this derailment, dated February 18, 1924, containing a report of James E. Howard, illustrated with numerous engravings made in connection with a study of the fracture of the rail which caused the derailment.

1011. *Atlantic Coast Line*, Nahunta, Ga., November 28, 10:26 p. m.—Northbound passenger train No. 32, being run as an extra, because not on its regular line, was run into at the rear by northbound train No. 8 of the Southern Railway, the leading train being practically motionless and the other one moving at about 25 miles an hour. The locomotive and one car were damaged and the engineman of No. 8 was killed; and 100 persons were reported injured. Nahunta is at the crossing of a line running north and south and one running east and west, and the leading train had been stopped to back through a wye, to go westward to regain its normal line. The point of collision was about 1,000 ft. north of the station and crossing; and the responsibility is placed on the conductor and the flagman of the extra for not properly protecting their train, although it appears that the station attendant took no measures to keep the trains apart, according to the time interval regulations, nor to warn the second train by the home and distant signals, which are fixed at suitable distances south of the crossing. It appears that the traffic on the east and west line is so light that a practice has grown up of leaving the crossing signals clear for main line movements, except when a crossing movement was to be made. If the standard practice had been followed, of keeping these signals against approaching trains except when necessary to be cleared, the second train no doubt would have been protected from the first train; although there is no block signal system in use. The train-order signal at the station was also in the proceed position. However, the line of road is straight for several miles and the weather was fair, so that no reason is apparent why the engineman of No. 8 should not have seen the red lights on the rear of the standing train. This dependence on a straight line and a clear view seems to have been the real explanation of negligence in various directions. The flagman of the leading train claimed to have thrown off fusees, but the testimony was conflicting as to whether

this was properly done, or done at all. At Winokur, 12 miles south of Nahunta, the operator had neglected to give to the engineman of No. 8 a card, indicating that he was following the other train in less than 10 minutes, the excuse being that the train came on some one or two minutes earlier than had been expected. The engineman of No. 8 is believed to have been in good health. The report says that ten first class trains are scheduled over this line, and that the time table system of spacing trains is inadequate; but it does not recommend the block system; it calls for an automatic train control system.

1015. *Pennsylvania*, Columbus, Ohio., December 7, 7:37 a. m.—An eastbound freight train ran off the track at the derailing switch approaching the crossing of the C. C. C. & St. L., at MI tower, overturning the locomotive and wrecking five cars. A brakeman (who, with the other men on the locomotive, jumped off) was killed, and three other employees were injured. The train was moving at about 20 miles an hour, the distant signal, about 4,500 ft. from the derail, having been stuck in the clear position unknown to the signalman in the tower. The conclusion of the inspector is that the signal failed to go to the caution position after it was cleared for a train at 12:40 a. m. Other freight trains passed eastward at 2:20 and 3:30 and all the men on these trains (except one) who saw the signal said that it was in the clear position for their trains, though the towerman said that these trains passed at moderate speed with no indication that they had not received a dispatcher's order, which he supposed had been issued, notifying trains that this distant signal was not in service. After having difficulty in clearing the signal at 12:40 a. m., the towerman had notified the signal maintainer; but he, being unable to locate the trouble, advised that the distant signal be put out of service. The signalman then notified the dispatcher (by means of a telephone message to the operator at Cedarville) but it appears that this order was not issued, the dispatcher, because of some confusion, having concluded that the signalman would take the necessary precautions. The dispatcher, in his defense, observed that the signal, being out of service, should have been secured in the caution position; it would not make things any safer to give notice to the trains. The day signalman, who came on duty at 7 a. m. found no record to indicate that the distant signal was out of order and he was unaware of the fact until the maintainer arrived about 7:10 a. m. When the ill-fated freight came along, he tried to clear the route but a Big Four train was still on the crossing, or near enough to it to keep the levers locked. The maintainer who ordered the signal out of service testified that he assured himself that the signal was displaying the yellow indication before he went home. This signal is out of sight from the signal cabin, with no indicator in the cabin to show its position. The maintainer had done nothing to secure safety except to open the circuit to the control relay; he did not disconnect the signal operating battery at the signal post, and it appears that the cause of the clear position of the signal was intermittent residual magnetism. The dispatcher is censured for not having made sure, by direct communication with MI tower, that the signal was in proper position to furnish adequate protection.

The report ends with the usual observation that automatic train control would probably have prevented the disaster.

1016. *New York Central*, Forsyth, N. Y., December 9.—A westbound express train, running at high speed in a dense fog, ran past distant and home signals set against it and collided with a preceding passenger train, which had been brought to a stop; 8 passengers and 1 trainman killed; 35 passengers injured. This collision was reported in the *Railway Age* of December 15, December 29 and January 19.

1017. *Missouri Pacific*, Amboy, Ark., December 15, 9:50 p. m.—Southbound passenger train No. 103, moving at about 25 miles an hour, ran over a misplaced switch and into the head of northbound passenger train No. 106, standing on a side track, badly damaging both engines and considerably

damaging all of the cars in both trains. The engineman and fireman of the standing train were killed as was also one trespasser; and 155 passengers, 4 other persons and 8 employees were injured. The switch was turned against the approaching train a very short time before the train came on, the light having been known to indicate green (all right) only a short time before; and circumstantial evidence indicates that the train porter of No. 106, whose duty it was to go to the switch and open it after train 103 had passed, turned it immediately in front of the train; but the porter denied this, and the engineman and fireman of No. 106, who would be best informed concerning the matter, were both killed. This train porter had been in the service two years, with a clear record.

1018. *Virginian*, November 26 and December 5. This report covers two collisions one at Lively, Va., and one at Elmore, W. Va. Neither of them resulted in fatalities and in ordinary course would not have been investigated; but a complaint was made by the enginemen's and firemen's brotherhoods, the collisions occurring while there was a strike on the road and when inexperienced men were employed. The collision at Lively did but little damage but it was followed by a fire which destroyed eight cars. In this case an eastbound train, a freight, consisting of 49 cars, with two locomotives, one at the head and one in the middle of the train, was being run by the master mechanic as engineman of the leading engine; and it collided with a westbound freight at the meeting point. The collision is held to have been due to his inexperience; he did not properly control the speed on a descending grade. He claims that the train was being pushed by the helper engine (in the middle) but this claim is not accepted. At Elmore the trains which met were passenger trains, and four persons were injured; but the locomotives were not disabled so but what they continued with their trains. The speed was low, but on one of the trains the engineman, and also the pilot, who should have guided him, were both insufficiently acquainted with the locations of the switches at the meeting point; because of this they did not know exactly how far they had the right to run as against the opposing train. "It is incumbent on the officials of the railway to take immediate steps towards seeing that the lives of the traveling public are not placed in danger through the use of unqualified employees in responsible positions."

1019. *Nashville, Chattanooga & St. Louis*, Kennesaw, Ga., December 22.—Southbound passenger train No. 91, moving at about 40 miles an hour, was derailed on a curve by a broken rail and the engineman was killed. One passenger and two employees were injured. The cause of the derailment was nosing of the locomotive and "local track conditions; but in addition to this, there was a state of brittleness in the rail on the gage side of the head, attributed to the flange action of the wheels." The commission issued a detailed report containing a study of the broken rail by James E. Howard.

993. Derailment due to a switch which had been damaged by being run through.

997. Freight train moving at high speed derailed on a curve; cause not determined.

1001. Milk train, at 2:11 a. m., running through a long sidetrack derailed at a misplaced switch; three employees killed. The long siding was wrongfully used as a main track without suitable precautions.

1003. Passenger train moving at full speed derailed at a facing point switch. A long report ends with the statement that no definite cause could be ascertained.

1020. Eastbound freight, approaching at about 20 miles an hour, collided with a switching locomotive; engineman, after passing distant signal, had fallen asleep. The fireman and a brakeman on the engine were held negligent for paying no attention to signals or to the excessive speed approaching yard limits.



Parade Before First Game of Post Season Series—Chesapeake & Ohio General Office League, Richmond, Va.

Railroad Health and Recreation Programs

Railroads Are Taking More Active Interest in Promoting Activities of This Kind

ATHLETIC and recreation programs are not a new thing on the railroads; a few roads have conducted such activities on a large scale for a considerable period of time, except as they were interfered with by war conditions. A growing interest, however, has been shown in health and recreation programs during the past few years, and several roads have either recently embarked upon or are about to launch work of this sort.

A. S. Payne, superintendent of the Norfolk & Western, Crewe, Va., in speaking on this question at the Sixteenth International Transportation Conference of the Y. M. C. A. at St. Louis last November, made the following significant statement: "Anything that helps the men helps the company. We feel that clean sport in which every one stands on his own merits as a man, regardless of his occupation, develops men physically, mentally and morally. Furthermore, it develops a sense of fair play and the recognition of one's own rights, as well as the rights of others. It brings those of different occupations together on common ground, resulting in better acquaintance and relationship between various crafts. Healthy sport removes the grouch, brings the mind to the normal state and fits a man to better perform his allotted task. We regard the health and recreation program as an important factor in strengthening our organization and propose to carry forward the work with increasing vigor."

Health and recreation work on the Chesapeake & Ohio and the New York, New Haven & Hartford was also briefly commented upon at this conference; the crowded condition of the programs, however, prevented adequate attention being given to these developments. A more complete account of this work on these three railroads follows:

Health and Recreation on C. & O.

By B. F. Bryant

System Director of Health and Recreation

The Chesapeake & Ohio decided early in 1923 to promote a department of health and recreation for its employees over the entire system. President W. J. Harahan invited the Transportation Department of the International Committee of the Y. M. C. A. to appoint a secretary to direct the work of this new department. February 1, 1923, saw the actual

beginning of organization for work pertaining to the general health and recreation of the employees. The aims of the department are to study the health conditions in the offices, shops and communities where the employees are located in any considerable numbers, and to introduce recreation features which will appeal to the greatest number in each group.

The present plan of organization is to have a local general committee, which has responsibility for the promotion of the entire health and recreation program at each point where large enough groups are located. The personnel of such a local committee is composed of men or women capable of leadership in sub-committees, to be responsible for any single activity that may be promoted. Two of the outstanding results of the work thus far are shown in the willingness and desire of the employees for a really live program of activities, and the readiness with which employees representing both the officials and the rank-and-file, give of their time and thought for committee work and promotion of the various features.

The following activities have proven successful thus far: Baseball, football, volley ball, tennis, hiking, bowling, basketball, dart baseball, quoits, horse shoes, children's playground activity and social gatherings.

We believe that one reason for the fine spirit and morale being developed towards the movement is because it is being financed both by the employees and the railway company; as far as possible, each sharing 50 per cent of the gross cost. The interest in and the demand for increased and new promotion at the local points proves conclusively that the future opportunities for health and recreation work are unlimited and already there are many instances which indicate that the health and recreation movement is already becoming a factor in building up the family spirit among the employees of the C. & O. Men in the different departments and the officers come to know the employees in other departments by their first names and such contact and acquaintances cannot but help make one happier in his every-day work. The officials of the C. & O. are definitely and practically endeavoring to prove that they have more than a "pay envelope" interest in the welfare and desires of the employees and the members of the employees' families.

The members of the various committees which have been

through one season's promotion in recreation are making larger and more enthusiastic plans for next season, and this same enthusiasm carried over into the winter activities. Request for help and suggestions for organization and promotion plans are coming so fast from the local points over the system that the health and recreation director is finding it hard work to keep up with the needs for timely action.

It has been distinctly proven that the average employee not only desires organized recreation but is himself willing to do his share to make such a program available and advantageous to others. Definite plans are being worked out for the organizing of the work by divisions and also for a general system organization into which the local committees will fit; thus bringing about in a few years, a complete system health and recreation organization which will be able to reach and influence directly the lives and environment of all the employees and their families.

Health and Recreational Program on N. & W.

By Dr. C. H. Hagenbuch
Director of Health and Recreation

The recreation and health program on the Norfolk & Western was started after a number of conferences between the management of the road, and G. K. Roper, Jr., senior secretary of the Transportation Department of the International Committee, Y. M. C. A. The present director spent a month making a careful survey of the entire road and submitted a report. As a result of the conferences and survey,



Norfolk & Western Motive Power Department Baseball Club,
Winston-Salem, N. C.

the Norfolk & Western engaged a health and recreational director and work was started on July 1, 1922. Previous to this time, a baseball league was organized at Roanoke and there were one or two organized teams at other places. There was very little equipment available and no plans had been made for the promotion of a program.

The work was started under difficulties, but even with the strike on, the baseball league at Roanoke finished the season and the director had a chance to make an extended study of the field, forming friendships and making plans. During the past year very definite progress has been made and work has been started at all division points and at some of the smaller points on the road as well. Executive committees

have been appointed at Norfolk, Crewe, Roanoke, Bluefield, Portsmouth and Columbus. At Williamson, W. Va., Shenandoah, Va., and Winston-Salem, N. C., the general foremen have fostered the program.

Baseball has been by far the most popular sport, and on the east end of the line the season is a long one—from April to the last of September. During the past season there were 25 teams playing a regular schedule of games. At the end of the season the eight leading teams played for a system championship. Bluefield, W. Va., won the championship of the west end of the line. Roanoke won the championship of the east end, and also the system championship.

During the past year, also, bowling has proven to be a very popular sport, especially at Roanoke, where there are almost 8,000 employees, and where most interest has been shown in the program. Sixteen teams are bowling in two



Winners of Tug of War Event—Field Day and Post Season
Games of the Chesapeake & Ohio General Offices
at Richmond, Va.

leagues, and a girls' league would be under way if alleys were available for them. Unfortunately, at most of the smaller points there is no equipment for bowling.

The Gymnasium Club idea was started in 1923, co-operating with the high schools, and at one point with the City Y. M. C. A. The men meet one night a week at the high school gymnasium, in many places under the direction of the high school physical director. Basketball, volley ball and indoor baseball are played. Clubs are now organized at Norfolk, Bluefield, Portsmouth and Columbus.

During the system baseball championship games, and since that time, a number of good-fellowship dinners have been held in connection with our celebration of the closing of the baseball season, or the beginning of the basketball season. We decided to have more of these, because of the fine fellowship which it adds to our athletic program.

The organization of three groups of younger men in Roanoke should be mentioned—two groups from the shops, one at the east end and one at the west end, and a messenger group at the general office building. Monthly suppers are planned and two nights a week a gym class is held at the City Y. M. C. A. All have become members there, with some help from the company.

So far in the program, the highly competitive games have had first place and have been used to reach the men. Our hope, also during the coming year, is to develop the informal games. We have emphasized clean sportsmanship at every opportunity, and in the conduct of games and leagues, officials have had this point in mind. Difficulties arise, protests come in, ineligible men play, but each case of this kind presents an opportunity to make better sportsmen of the men involved and will make better railroad men on account of it.

So far, we have been looking at the program from the standpoint of progress made. Now, may we look at it from the standpoint of the men, and take into consideration the sports and activities in which they like to take part. Recently a survey has been made of Roanoke and Portsmouth to find out, first, how many younger men we have; men who would be especially interested in the more strenuous sports. Second, how many mature, married men there are. Third, in what sports or activities men like to participate. Dividing men into the following age groups, we have the following summary:

	15 years	16-18 years	19-20 years	21-25 years	Over 25 years	Total
East End shops.....	4	103	121	395	926	1,549
General offices	7	41	33	137	290	508
West Roanoke .....	..	18	15	71	212	316
Total	11	162	169	603	1,428	2,373
Portsmouth .....	..	31	60	347	704	1,142

The following summary explains itself:

	Married	Single	At home	Boarding
East End Shops.....	984	565	1,152	397
General offices	241	272	408	105
West Roanoke	214	102	239	77
Total	1,439	939	1,799	579
Portsmouth	765	377	792	350

The main reason for quoting the above summary is to point out the opportunity that is ours to furnish recreation for this large group of younger men. The figures for Roanoke are not nearly complete. There are many more than are shown by these figures. These figures emphasize the opportunity that we have with the younger group, but in bowling and the gun club and many other lines of sport, the older, more mature man is also interested. This adds to the bigness of the opportunity.

The following summary, concerning the sports in which men like to take part cannot be taken 100 per cent, but even discounting it 50 per cent, or more, the figures still are large; at least we can see that large groups of men would take part in many activities, were equipment available and if some one would furnish the leadership. The men were asked to check the sports or activities in which they would like to take part. The following is the summary:

Activity	West End Shops	General offices	West Roanoke	Total
Baseball	536	138	128	797
Tennis	81	144	20	245
Swimming	471	230	85	786
Basket ball	117	102	22	343
Volley ball	35	40	8	83
Fishing	676	241	158	1,075
Camping	503	273	106	882
Gun Club	262	85	87	424
Hikes	134	208	28	370
Bowling	163	149	53	265
Horse shoes	169	59	50	278
Music, vocal	148	62	39	249
Music, instrumental.....	180	76	27	283
Gardening	250	88	51	386

To summarize, the program was started under difficulties, but due to the fine spirit of the men on the road, and the co-operation of the Y. M. C. A.'s, progress has been made, and from a recent survey, there is undoubtedly a big opportunity ahead to help railroad men on the Norfolk & Western with their recreation. The company is willing to go ahead, and at Roanoke, has shown its willingness by purchasing the fair grounds at an expenditure of \$150,000. It has, very willingly, appropriated funds for providing equipment and has co-operated heartily in every way. The Railroad Y. M. C. A. has a wide-open opportunity to come in and occupy the field and furnish the leadership for the recreational program. At some points they are taking advantage of this opportunity and are co-operating in a very fine way. At other places, the railroad men themselves are organizing and furnishing the leadership and are making good headway towards putting over the program.

The Program on the New Haven

By B. T. Best

Director of Department of Health and Recreation

The work of athletics and recreation on the New Haven is on the basis of an athletic association. All of the various divisions on the road where the employees are so inclined—and that is practically every division on the system—have organized and developed athletic associations, with a moderate membership fee of a dollar a year. Out of those membership fees, and out of social events, such as dances and occasional outings, which raise further revenue, a very large share of the expense of this program is financed. We are progressing with the program as rapidly as there is a call for the various activities on the part of the employees themselves.

The creation of this department was in response to the demand on the part of the employees. A survey was made, on our road, some four years ago, to determine the degree of interest in athletics and recreation, and the development of these activities has come as a result. We are interested in baseball and have leagues all over the system. We promote bowling, pocket billiards and boxing. At the general offices in New Haven alone, there are 300 employees, both men and women, in bowling leagues, which is a very popular sport in New England.

The work seems to be meeting with a ready response and is creating quite a different atmosphere between the employees and the supervisory officers. Just the other night, I observed two of the bowling teams in one of the leagues in New Haven in action on the alleys. On one of the teams was a divisional superintendent and his trainmaster, and on the other team was one of the office boys who was working in the office under the supervision of this division superintendent. It was very delightful to see how this office boy razzed the superintendent on his rotten bowling.

Freight Claim Statistics for the Man on the Line*

By G. D. Brooke

Superintendent Transportation, Baltimore & Ohio, Western Lines, Cincinnati, Ohio.

IT IS A WELL-KNOWN FACT that highly perishable freight and live stock, unless well handled, are the source of heavy payments for loss and damage. It seems to be a well organized part of the business of many shippers of perishable fruits and vegetables to compare the actual movement of every car with the schedule and if there is any delay whatever, to file a claim, regardless of whether any real damage is caused by the delay. Grains are bought and sold in a fluctuating market. If delayed in transit and the market drops during the period of the delay, the shipper makes a claim for the amount of the depreciation.

The ill-effects of delays are manifold, among them being loss of business through routing to other lines by the shipper, payment for freight claims, increased per diem expense, reduced average car mileage and reduced car supply. No good effects of delays from the viewpoint of the railroads can be called to mind.

Of the above, loss of business is perhaps the most serious and freight claim payments the next. Reduced average car mileage, increased per diem expense and reduced car supply are less important but are serious enough.

*Abstract of a paper presented before a meeting of the Freight Claim Prevention Committees of the Baltimore & Ohio, Western Lines, at Cincinnati, Ohio, on February 21.

The most far-reaching delays are those brought about by the capacity of the available plant—the main tracks, yards, sidings, freight stations, shops, locomotives—being inadequate for the time being to handle the business currently. The condition may be due to one or more of a number of causes, such as labor trouble or poor condition of power, but the result is always crowded facilities, congestion and wholesale delays. Fortunately, only a small percentage of the delays under these circumstances result in claims, as much of the business is of such a nature that delays do not seriously impair the value; and by careful watching and checking, the cars containing perishable and other high-class freight *can* be kept moving. The conditions, though, are most fruitful of delays and even the cars of Q. D. freight are easily overlooked; so the handling has to be skillful, indeed, to prevent heavy losses in payments for delays.

Delayed trains, resulting in connections being missed, constitute another general source of delays. Then there are those caused by hot boxes and other mechanical defects, making it necessary to set cars out on line of road or to hold them over 24 hours or more in terminals; those due to the inherent difficulty of getting cars from outlying switching territory assembled in time to be forwarded on schedule trains; those resulting from the movement of important Q. D. cars by circuitous and unusual routes, and those growing out of carelessness, inadvertence and lack of interest on the part of employees at stations, in the yards and on the road.

In casting about for a basis upon which to combat freight claims, it would seem logical to turn at once to the statistics of the loss and damage payments. These will be found useful as indicating the high spots, the relative importance and the general tendency up or down of the principal classes of loss and damage and the principal commodities involved. They are valuable in emphasizing the seriousness of freight claim payments and the importance of systematic and thorough-going freight claim prevention. In their present form, though, they are of too general a character to be of such value in applying specific preventative remedies. The unit of location is the operating division, quite extensive in itself, but when it is recalled that there is no separation of the interline payments from those for loss and damage occurring on and involving only the home lines it is realized that the limits are virtually boundless and the problem of localizing definite kinds of loss and damage becomes quite like the proverbial "needle in the hay-stack," except that in this case there are many needles. And while the statistics are issued month by month, there is no unit of time; for a claim paid in one month may have been for some loss or damage occurring 18 months or 2 years previous thereto. It is safe to assume that a very small percentage of the claim payments shown in the statement for any given month are for loss and damage occurring in that same month. The statistics do not tell when, where, or in what way the losses and damages are occurring. They are not of much assistance to the superintendent in putting his finger on the weak spot or in pointing out to him the leak which he so earnestly desires to stop. To the average superintendent who takes a real interest in reducing loss and damage this is very perplexing. He is asked to reduce this expense and is anxious to do something but he does not know just how to go about it. Too often the result is that he turns the matter over to his chief clerk who writes a general letter to the staff and the agents of a few of the larger stations telling them to reduce loss and damage, but omitting any helpful suggestions as to how this should be done. The members of the staff are in as much of a quandary as the superintendent was. They may talk in a general way to a few freight train crews, agents and platform foremen, and there the efforts will end.

It would seem entirely practicable to make a thorough analysis of loss and damage statistics. This would cost something but the information would be worth far more than the cost. It would be definite and specific. It would indi-

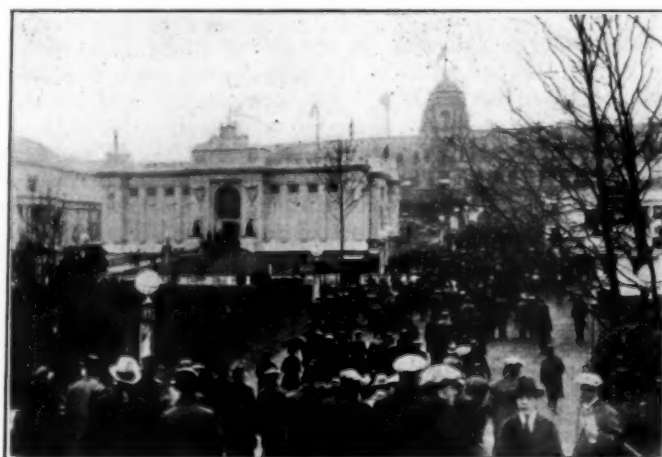
cate the weak spots and the leaks. It would make it possible to determine if additional force is justified to accomplish certain things; whether our own operations should be tightened up, and where; or if we need protection from the poor work of other roads and should take steps to establish it at the interchange points. These, and a hundred others, are the things the loss and damage statistics will reveal if they are made to tell their story.

Frequently helpful pointers can be gathered from the correspondence files relating to freight claims. This correspondence may reveal that the observance of instructions concerning refrigeration and ventilation is lax at certain points; that at some interchange with a foreign line proper seal records are not being kept; or that cars of important freight moving via certain routes meet with frequent delays. The root of the trouble having been discovered, it is usually not difficult to apply the remedy.

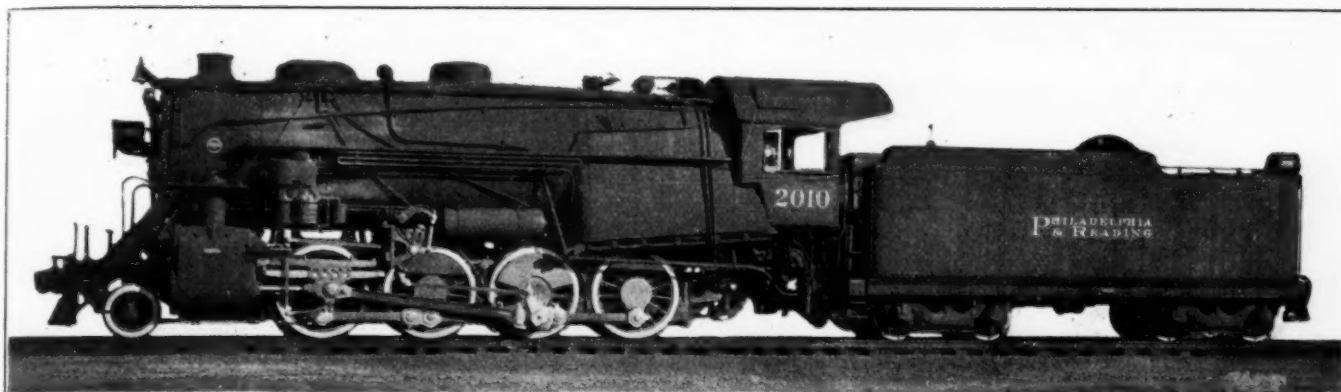
But such methods, because of their limited scope and for the reason that the loss or damage has frequently occurred several months before the claim was filed and the correspondence examined, are unsatisfactory and not of general application. They do not provide the broad basis or scheme which is a requisite of any successful campaign against loss and damage and other transportation short-comings which result in freight claims. In the absence of something better, the following is suggested:

When a railroad signs a bill of lading, it enters into a contract to perform certain definite transportation; it assumes the obligation to deliver the shipment at its destination in a safe and sound condition and in a period of time more or less definitely fixed by schedules or by what is customary service for the class of freight of which the shipment consists. Now, if the railroad fulfills its part of the contract fully and without doubt and has records to show that it has done this, if it does a good job of railroading and *can prove it*, few freight claims will be made and fewer freight claims will be paid. Some one may bring to mind claims for concealed losses and those claims which are made purely with fraudulent intent; but if anything approaching 100 per cent transportation can be afforded, even these will be, to all practicable purposes, eliminated.

Therefore, our energies available for freight claim prevention can, with the greatest assurance of success, be devoted to perfecting our transportation methods and practices. This means the systematic instruction and re-instruction of the rank and file of our employees and the bringing to them, through educational means, the realization of their responsibility in the general scheme of transportation and of the importance of thoroughness on the part of the individual in those details of transportation of which his duties consist.



C. N. R. Building at Wembley—Stadium Building in Background



Reading Consolidation Locomotive Which Weighs 314,950 lb. and Has a Tractive Force of 71,000 lb.

Reading Consolidation Type Locomotive

The Weight on Drivers Averages 71,000 lb. per Pair—The Tractive Force Is 71,000 lb.

THE HEAVIEST locomotives of the Consolidation type thus far completed by the Baldwin Locomotive Works were built for the Reading Company late in 1923. These locomotives, 25 of which were built, are designated as Class I-10-S A. They weigh 314,950 lb., with 284,190 lb. on drivers, and develop a maximum tractive force of 71,000 lb. A comparison of their principal dimensions with those of previous Consolidations built for this road, shows in a striking manner the increase in capacity effected since 1880. Such a comparison is presented in the accompanying table.

As compared with the locomotives built in 1880, Class I-10-S A shows an increase in total weight of 208 per cent

wheels, and are spaced transversely to permit the locomotives to pass curves as sharp as 22 deg.

The boiler is of the Wootten type, with a conical ring forming the front half of the barrel, and a maximum diameter of 96 in. The center line is placed 10 ft. 2 in. above the rail. The firebox has a combustion chamber, across the throat of which is built a brick wall 26 in. high. A Duplex stoker is applied, and the grate is of the rocking pattern, with drop plates front and back. The ash pan has a single hopper of large capacity, with a steam blower pipe for cleaning. A special feature that should be noted in connection with the boiler, is the Economy front end, patented by I. A. Seiders, superintendent of motive power

THE DEVELOPMENT OF THE CONSOLIDATION TYPE ON THE READING

Date built	Cylinders, in.	Drivers, in.	Steam pressure, lb.	Grate area, sq. ft.	Water heating surface, sq. ft.	Superheating surface, sq. ft.	Weight on drivers, lb.	Weight total engine, lb.	Tractive force, lb.
1880	20 by 24	50	120	76	1,357	...	90,300	104,100	19,600
1890	22 by 28	50	140	76	1,818	...	135,000	150,000	32,250
1900	22 by 28	56	200	47.5*	2,130	...	147,600	164,300	41,200
1905	22 by 30	61½	210	90	3,209	...	204,000	226,250	42,200
1919	25 by 32	55½	200	94.9	2,655	575	250,800	281,100	61,000
1923	27 by 32	61½	220	94.5	3,315	778	284,190	314,950	71,000

* Designed for burning bituminous coal.

and in tractive force of 262 per cent. With a ratio of adhesion of four, the weight on drivers of the new locomotives is fully utilized for traction purposes.

Fuel and traffic conditions on the Reading are largely responsible for the continued use of the Consolidation type in heavy freight service. The fuel used is a mixture of fine anthracite and bituminous coal, which can be economically burned in a wide firebox placed above the driving wheels; while the traffic consists largely of coal which is hauled in heavy drags at moderate speeds. With the excellent track conditions on this road, and with generally favorable grades from the mining regions to tide-water, eight-coupled locomotives handle the heaviest trains that can be economically operated, and the Consolidation type is meeting the requirements successfully.

The new locomotives are a direct development of Class I-9, built in 1919, and have many features in common with them. The increase in total weight is 12 per cent and in tractive force 16 per cent. Flanged tires are used on all the

and rolling equipment of the Reading. The sparks are broken up by means of a breaker plate, consisting of a slotted plate fitted with deflecting vanes, which is placed under the superheater damper and in front of the tubes. The netting frames are most substantial in construction, and the device has proved very effective in preventing the setting of fires due to escaping sparks.

Two of the locomotives in the group are equipped with the Sellers exhaust steam injector.

As in the Class I-9 Consolidation type locomotives, the cylinders are cast separate from the saddle. The valve chambers are bushed for 13-in. piston valves, but are of sufficient size to take valves 14 in. in diameter. The valves are set with a travel of 6½ in. and a lead of ¼ in.; they have a steam lap of 1 in. and an exhaust clearance of 1/16 in. They are operated by Walschaert gear, controlled by the Ragonnet power reverse mechanism. The pistons have rolled steel heads and cast iron bull rings, and the driving and engine truck axles, crank pins, piston rods, and connecting

rods are of quenched and tempered steel; the driving axles are hollow bored. Fifty per cent of the reciprocating weight is balanced.

The main frames are each cast in one piece, and with the transverse braces are of most substantial construction. The front frame sections are in the form of slabs, which fit between the central saddle and the cylinder castings. The main driving boxes are of the extended type, and self-adjusting wedges are used in the main pedestals.

The tender frame is built up, with 10 in. and 12-in. longitudinal channels and steel plate bumpers. The tank carries 9,500 gal. of water and 15 tons of coal. The trucks are of the equalized pedestal type, with forged steel wheels.

These locomotives have a width over the cylinders of 10 ft. 5 in., and a height over all of 15 ft. 4 $\frac{5}{8}$ in. Further particulars are given in the table of dimensions.

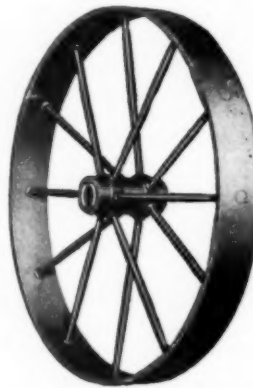
Railroad	Reading
Type of locomotive	2-8-0
Service	Freight
Cylinders, diameter and stroke	27 in. by 32 in.
Valve gear, type	Walschaert
Valves, piston type, size	Piston, 13 in.
Weights in working order:	
On drivers	284,190 lb.
On front truck	30,760 lb.
Total engine	314,950 lb.
Tender	187,050 lb.
Wheel bases:	
Driving	17 ft. 6 in.
Rigid	17 ft. 6 in.
Total engine	27 ft. 6 in.
Total engine and tender	66 ft. 10 $\frac{1}{4}$ in.
Wheels, diameter outside tires:	
Driving	61 $\frac{1}{2}$ in.
Front truck	33 in.
Journals, diameter and length:	
Driving, main	12 in. by 18 in.
Driving, others	11 in. by 13 in.
Front truck	7 in. by 11 in.
Boiler:	
Type	Critical
Steam pressure	220 lb.
Fuel, kind	Anth. and bit. mixed
Diameter, first ring, inside	88 in.
Firebox, length and width	126 $\frac{3}{4}$ in. by 108 $\frac{1}{4}$ in.
Tubes, number and diameter	291—2 in.
Flues, number and diameter	50—5 $\frac{1}{4}$ in.
Length over tube sheets	13 ft. 6 in.
Grate area	94.5 sq. ft.
Heating surfaces:	
Firebox and comb. chamber	327 sq. ft.
Arch tubes	
Tubes and flues	2,988 sq. ft.
Total evaporative	3,315 sq. ft.
Superheating	778 sq. ft.
Comb. evaporative and superheating	4,093 sq. ft.
Tender:	
Water capacity	9,500 gal.
Fuel capacity	15 tons
General data estimated:	
Rated tractive force, 85 per cent	71,000 lb.
Cylinder horsepower (Cole)	2,886
Weight proportions:	
Weight on drivers÷ total weight engine, per cent. ..	90.3
Weight on drivers÷ tractive force	4.0
Total weight engine÷ cylinder hp.	111.7
Boiler proportions:	
Comb. heat surface÷ cylinder hp.	1.45
Tractive force÷ comb. heat. surface	17.3
Tractive force × dia. drivers÷ comb. heat. surface ..	1,066.8
Cylinder hp.÷ grate area	30.5

Roller Bearing Wheels for Baggage Trucks

AN ALL-STEEL WHEEL with roller bearings has been developed by French & Hecht, Davenport, Iowa, for use on baggage trucks which will lessen materially the labor of handling baggage at stations. The construction of the wheels includes a steel hub with a truss construction for the spoke, enabling the wheel to carry the loads without collapse or loosening. The spokes are forged into the steel hub while hot with a head formed on the inside and a shoulder on the outside similar to a boiler rivet fastening. This insures tight spokes for the life of the wheel and is considered an improvement over the methods of construction where molten gray iron is poured around the spokes to form the hub or where the spokes are threaded and screwed

into the hub. Inside of the hub is a seamless steel bushing which can be replaced easily and quickly whenever it becomes worn.

The roller bearings comprise two short bearings separated by a spacer. They are six inches long over all and are designed to fit a 1 $\frac{3}{8}$ in. straight round axle spindle. These roller bearings reduce the ordinary frictional load from 30 to 50 per cent, as a result of which station truck may be loaded



The Wheel Is All Steel



The Roller Bearings

to capacity and handled with ease by one man under conditions which ordinarily would require two men or more to move it. A recent examination of roller bearing wheels of this construction which have been in service over 10 years revealed practically no wear on the axle or the removable sleeve in the steel hub and only slight wear on the roller bearing.

Freight Car Loading

WASHINGTON, D. C.

REVENUE FREIGHT CAR LOADING in the week ended June 21 showed a slight gain over the previous week, but the total, 903,700 cars, was 101,282 cars less than that for the corresponding week of last year and only 37,379 cars above the figure for 1922, besides being below the corresponding figures for 1918 or 1920. In the Pocahontas and Southwestern districts the loading was above that for last year but in the Northwestern district it was below that for 1922. Coal loading was still very light, a decrease of 42,595 cars as compared with last year, and only grain and grain products and livestock showed gains as compared with last year. The summary as compiled by the Car Service Division of the American Railway Association follows:

REVENUE FREIGHT CAR LOADING—WEEK ENDED JUNE 21, 1924

Districts	1924	1923	1922
Eastern	213,360	248,197	192,776
Allegheny	187,190	226,027	173,382
Pocahontas	41,127	39,886	44,155
Southern	124,905	130,924	126,764
Northwestern	144,316	168,081	154,015
Central Western	134,214	136,213	120,694
Southwestern	58,588	55,674	54,575
Total Western districts	337,118	359,968	329,284
Commodities			
Grain and grain products	36,533	33,949	38,130
Livestock	31,791	28,794	29,913
Coal	140,807	183,402	96,204
Coke	7,325	14,828	9,442
Forest products	67,886	78,089	63,775
Ore	57,305	82,035	63,698
Mdse., L.C.L.	240,675	242,520	248,351
Miscellaneous	321,378	341,365	316,808
Total	903,700	1,004,982	866,321
June 14	902,710	1,008,838	848,657
June 7	910,710	1,012,312	836,208
May 31	819,904	932,684	739,559
May 24	918,213	1,015,532	806,877
Cumulative total, January 1 to date.	22,278,352	22,984,031	19,157,422

Analysis of the Cost of Freight Car Repairs

Need is Evidenced by 196 Per Cent Increase in These Expenses from 1911 to 1922—Methods Suggested

By J. L. White

Formerly Assistant Comptroller, United States Railroad Administration

IN A PREVIOUS ARTICLE in the *Railway Age* (March 1, 1924), the writer discussed methods of analyzing the maintenance of equipment expenses. It was not possible, however, in the limits of that article to do more than touch upon the complications confronting the analyst in his study of the cost of freight train car repairs. The purpose of this article is to set forth these difficulties, and to suggest a uniform method of reporting to the Interstate Commerce Commission the supplementary data necessary for an intelligent analysis of the freight car repair costs.

196 Per Cent Increase from 1911 to 1922

The need for such an analysis is evident when we consider that the cost of freight car repairs for all Class I roads has risen from \$137,765,844 in 1911 to \$407,565,747 in 1922, an increase of 196 per cent. During the same period, locomotive repairs increased from \$148,600,485 to \$442,052,728, or 197 per cent.

As the first step in our study of freight car repairs, let us examine the various items included in the account "Freight train cars—repairs," which is reported to the Interstate Commerce Commission as a single item. As a matter of fact, this account should properly be divided into two separate accounts, namely:

- Repairs to owned cars.
- Repairs to foreign cars.

each account being further subdivided to give the following information.

Repairs to Owned Cars.

1. Repairs made on the home railroad.
 - Labor.
 - Material.
 - Miscellaneous.
2. Repairs made by railroads and others and billed against the owner at M. C. B. prices.
3. Repairs made in outside shops at contract prices.
4. Miscellaneous items.

Repairs to Foreign Cars.

1. Billable defects. (Owner's or carded defects.)
 - A. Charges—Actual cost of repairs to foreign cars covering defects that can be billed against the owner or other party responsible for the repairs.
 - Labor.
 - Material.
 - Miscellaneous.
 - B. Credits—Bills against owners or other parties responsible at M. C. B. prices for items included in "A."
 - C. Net profit or loss (net of "A" and "B").
2. Non-billable defects.
 - Labor.
 - Material.
 - Miscellaneous.
3. Net cost of foreign cars destroyed.

The complicated nature of an analysis of the account, "Freight train cars—repairs" can be readily understood when the many dissimilar items included in the account are noted. Unfortunately, many railroads do not keep their records in such a way that the items given above can be readily segregated, and on such roads, explanations of the fluctuations in the account must necessarily be largely a matter of guess work. On those roads where this separation is kept, however, it is possible to determine the general

causes of fluctuations with reasonable accuracy; the method of analysis being as follows:

Analysis of Repairs to Owned Cars

As set forth in the foregoing table, repairs to owned cars are made in three ways:

1. In the shops and with the forces of the owning railroad.
2. In the shops and with the forces of other railroads. Bills for those repairs for which the owner is responsible, called "Owner's Defects," are made against the owner at prices prescribed in the Interchange Rules of the American Railway Association, commonly called "M. C. B. Prices." Repairs for which the owner is not responsible, called "User's Defects," are made at the expense of the railroad responsible for the damage.
3. In outside shops at prices specified by contract.

As heavy repairs to freight cars are usually made by the owner, Item 1 given above, which covers repairs to owned cars made by the owning railroad, is usually the largest item in the account, "Freight train cars—repairs."

The fluctuations in this item should be divided as between those due to changes in rates of pay and prices of material, and those due to changes in the amount of work performed. One method of developing this information was described in the article on "Analysis of Maintenance of Equipment Expenses" previously referred to. It consisted in determining the difference between the actual cost of labor and material in the earlier period on which the comparison was based and a theoretical cost obtained by applying the rates of pay and prices of material in the later period to the hours worked and quantities of material applied in the earlier period.

Another method of obtaining this theoretical cost is by applying to the actual costs of labor and material in the earlier period equation factors reflecting the average change in rates of pay and prices of material between the periods under comparison. The labor equation factors can be developed from a comparison of the rates of pay of the principal classes of employees engaged in freight car repair work in the two periods, while the material factors can be developed in a similar manner from the average charge out prices of the principal materials used in freight car repairs. A reasonably accurate equation factor can be developed in this manner which will give a theoretical or equated cost sufficiently accurate for ordinary analysis without working out the entire account.

Equation Factor Would Help

In this connection, it is suggested that each railroad could readily develop equation factors for the purposes of a rough analysis of current maintenance costs from monthly index numbers for labor and material used in repairs to freight cars, locomotives and other equipment. Everyone is familiar with the Cost of Living Index Numbers published monthly by the Department of Labor at Washington, which are based on the pre-war cost of living (1913 being taken as 100). While the railroads could not readily use 1913 as the base, they all have voluminous statistics on the cost of labor and materials used in the various equipment repair accounts for the three year period ending June 30, 1917, usually referred to as the "Test Period," which would do

just as well as 1913 as the base with which to compare current costs. These statistics for the test period and similar figures for 1918, 1919 and 1920 were compiled for the purpose of analyzing maintenance costs during the period of Federal Control and the six months guaranty period ending August 31, 1920. Some of the roads have continued compiling this information for their own purposes and it could be kept currently by all with little expense. The data required for rates of pay can be taken from the monthly wage statistics compiled by all Class 1 roads for the Interstate Commerce Commission and for prices of material from the charge out prices on the storekeeper's price books; these rates of pay and prices of material being weighted on the basis of quantities reported to the Railroad Administration for the test period in response to Accounting Circular 109.

The railroads spent a great deal of money on the preparation of these statistics for the government and it would seem desirable to get as much use out of them as possible. When index numbers based on the test period as 100 have been developed, equation factors for comparing expenses of any two periods covered by these index numbers can be obtained by dividing the index number of the earlier period into the index number of the later period. This calculation is shown by the following table:

TABLE I
DEVELOPMENT OF EQUATION FACTORS FROM LABOR AND MATERIAL
INDEX NUMBERS

Period (1)	Index numbers Test period—100 (2)	Equation factors based on		
		1921 (3)	1922 (4)	1923 (5)
Test period.....	100	....	....	....
1921	200	1.00	....	....
1922	240	1.20	1.00	....
1923	210	1.05	.88	1.00
1924	180	.90	.75	.86

For example, if it is desired to compare the expenses of 1924 and 1922, the proper equation factor (.75) will be found in Column (4) headed "1922" opposite 1924 in Column (1). This factor is obtained by dividing the index number of 1922 compared with the test period found in Column (2), viz., 240 into 180, the index number of 1924 in Column (2).

Equation factors developed in this manner may con-

tain an element of error due to the fact that the relation between the hours of the various classes of labor and the total hours of labor, and the relation between the quantities of the various kinds of material and the total quantities of material in the test period may differ from the relations in subsequent years. Consequently, the weighted averages based on the test period relation may differ from the actual weighted average for a subsequent year taken as a new base. For a rough current analysis however, it is believed that equation factors developed from index numbers based on the Test Period would be sufficiently accurate.

The Use of Equation Factors

Returning now to the analysis of the repairs to owned cars and the practical use of the equation factors, the statement shown in Table II has been prepared to illustrate the use of equation factors in developing the theoretical or equated cost from which the actual cost in the earlier period is subtracted in order to determine what part of the fluctuation is due to changes in rates of pay and prices of material.

It will be noted that the same labor and material factors are used in equating labor and material used in repairs to owned and to foreign cars made on the home railroad but that a third factor is used for equating bills for repairs made at M.C.B. prices. This M.C.B. factor would be applicable to all such repairs wherever made as the prices are uniform for all railroads. A factor of 1.00 is used for all miscellaneous charges, as these are ordinarily not large enough to justify a special analysis. In the foregoing example no repairs in outside shops are shown for the earlier period, so no equation is necessary. If however, there were substantial amounts of such repairs in each period, it might be desirable to make a special analysis of these charges, which would require the development of a special factor. So far as the M.C.B. factor is concerned, it is suggested the American Railway Association might do well to develop such a factor currently for the use of its members.

Comparison of Amount of Work Performed

Having made a separation of the total increase or decrease in the account as between that due to changes in rates of pay and prices of material and that due to other

TABLE II
SAMPLE ANALYSIS OF ACCOUNT, "FREIGHT TRAIN CARS—REPAIRS," SHOWING METHOD OF APPLYING EQUATION FACTORS TO ACTUAL COSTS

Items 1	Actual cost			Equation factor 5	Equated cost (Col. 3 x Col. 5) 6	Increase or decrease due to	
	Current period 2	Previous period 3	Increase or decrease Col. 2-Col. 3 4			Changes in rates or prices (Col. 6-Col. 3) 7	Other causes (Col. 4-Col. 7) 8
Repairs to owned cars							
1. Made on home road							
Labor	\$150,000	\$100,000	\$50,000	1.25	\$125,000	\$25,000	\$25,000
Material	100,000	80,000	20,000	.90	72,000	-8,000	28,000
Miscellaneous	3,000	3,200	-200	1.00	3,200	.....	-200
Total	\$253,000	\$183,200	\$69,800	....	\$200,200	\$17,000	\$52,800
2. Made by other roads at M.C.B. prices	50,000	30,000	20,000	1.10	33,000	3,000	17,000
3. Made in outside shops at contract prices	20,000	.....	20,000	....	.....	.....	20,000
4. Miscellaneous	1,500	1,300	200	1.00	1,300	.....	200
Total repairs to owned cars...	\$324,500	\$214,500	\$110,000	....	\$234,500	\$20,000	\$90,000
Repairs to foreign cars							
1. Billable defects							
A. Actual cost							
Labor	\$10,000	\$8,000	\$2,000	1.25	\$10,000	\$2,000	.....
Material	12,000	10,000	2,000	.90	9,000	-1,000	\$3,000
Miscellaneous	300	300	.....	1.00	300	.....	.....
Total	\$22,300	\$18,300	\$4,000	....	\$19,300	\$1,000	\$3,000
B. Bill credits at M.C.B. prices..Cr.	23,400	Cr. 18,000	-5,400	1.10	Cr. 19,800	-1,800	-3,600
C. Net profit or loss.....Cr.	1,100	Dr. 300	-1,400	....	Cr. 500	-800	-600
2. Non billable defects							
Labor	4,000	3,200	800	1.25	4,000	800	.....
Material	3,000	2,600	400	.90	2,340	-260	660
Miscellaneous	200	210	-10	1.00	210	.....	-10
Total non-billable defects.....	\$7,200	\$6,010	\$1,190	....	\$6,550	\$540	\$650
3. Foreign cars destroyed.....	1,200	800	400	1.00	800	.....	400
Total repairs to foreign cars....	7,300	7,110	190	....	6,850	-260	450
Grand total freight train cars—repairs	\$331,800	\$221,610	\$110,190	....	\$241,350	\$19,740	\$90,450

causes, viz., changes in the amount of work performed, we come to the second part of the analysis, namely, the comparison of the amount of work performed and the requirements for repairs as measured by the use made of the cars. It is at this point that our troubles really begin.

The principal difficulty lies in the absence of records of the mileage made and service performed by the owned cars while on the tracks of other carriers. As a large part of the life of a freight car is spent away from the home rails, it is practically impossible to determine the requirements of repairs as measured by the mileage of owned cars.

The only available unit to measure these requirements is therefore the car day or car year of owned cars, which could be subdivided between different classes of freight cars, such as box, stock, coal, flat, etc., or between different types of the same class of car, such as wooden underframe box, steel underframe box, all steel box, etc.

It would be highly desirable from the point of view of the analyst if the repairs to owned cars, whether made by the owning railroad or by others, could be segregated by classes and types of cars for comparison with the car years of the same classes and types. Such information would also be of considerable value to the mechanical and purchasing departments when drawing specifications for the purchase of new cars. The advantages of such a separation of freight car repairs have not as yet appeared great enough to justify the accounting expense involved, particularly on large roads owning thousands of cars. In fact, as stated above, many roads do not even make the preliminary separation of the account as between repairs to owned and foreign cars which is essential in order to make even a general analysis of the account.

Effectiveness of Repairs to Foreign Cars

Another element in freight car repairs, the effect of which is difficult to calculate with accuracy is the relative effectiveness of repairs made to cars by "foreign" railroads as compared with repairs made by the owning railroad. The general tendency is for railroads to do only enough work to the bad order foreign car to enable it to get to destination. In other words, the running gear is kept up but little else is done to the car. While M.C.B. prices are sometimes high enough to yield a fair profit over actual cost so that roads should be encouraged to make all of the repairs to foreign cars necessary to put them in good condition when they become bad order, the repair forces usually have their hands full in keeping the owned equipment in condition and give the foreign car the minimum amount of attention.

Deferred Maintenance

The element of deferred maintenance is frequently present in the cost of freight car repairs to a degree not found in other equipment maintenance. When business falls off and there is a surplus of cars, it is the practice of many roads to reduce their repair forces and store hundreds of cars in unserviceable condition, repairs being deferred until business picks up again. This practice results in wide fluctuations in freight car repair costs and this element of deferred maintenance must be given careful consideration in an analysis of these fluctuations.

Another element in freight car maintenance which frequently confuses the analyst is brought about by the accounting rules of the Interstate Commerce Commission covering retirement of freight cars. It happens frequently that an improvement in the bad order car situation occurs during a period under investigation indicating an increase in repair work without a corresponding increase in the charges to freight car repairs. When this change in freight car condition has been brought about by a program of rein-

forcing old wooden freight cars in unserviceable condition by applying steel underframes, heavier draft gear, new roofs, etc., so that the car is practically rebuilt, the rules of the Interstate Commerce Commission provide that the book value of the old car shall be written out of the accounts and the cost of the rebuilt unit shall be written in like a new unit of equipment. The entire expense of putting these bad order cars in serviceable condition is divided between the Maintenance of Equipment account, "Freight Train Cars—Retirements" and Capital Account. Nothing is charged to the account, "Freight Train Cars—Repairs," although from the viewpoint of physical maintenance, a substantial amount of repair work has been done.

It is evident from the foregoing that while the increase or decrease in the cost of repairs to owned cars can be divided as between (1) that due to changes in rates of pay and prices of material, and (2) that due to changes in the amount of work performed or other causes, the comparison of the actual amount of repair work performed with the actual requirements for repairs is a difficult matter.

Analysis of Repairs to Foreign Cars

Let us now examine the second part of the account as set forth in Table 2, namely, "Repairs to Foreign Cars."

Item 1, Billable Defects, constitutes a manufacturing operation in which there may be a substantial element of profit or loss. Some small roads, particularly terminal companies on whose tracks a large number of foreign cars can usually be found have made quite a business of repairing foreign cars. On the basis of M.C.B. prices in effect prior to 1918, a substantial profit was earned on the operation. As a rule, however, the railroads do not pay much attention to the net result of these foreign car repairs. In fact, as stated above, many of them do not keep their records in such a way that they can tell whether they are making or losing money on these repairs.

As this would seem to be a matter of common interest to all the roads, the separation of the account to show these items as outlined in Table 2 seems highly desirable.

The method of analyzing the actual cost of labor and material used in making these "billable defect" repairs as set forth in Table 2 is the same as that used in analyzing the cost of repairs to owned cars made on the home railroad. The most important part of the study, however, is the comparison of the actual cost of these billable defects and the bills against the car owners or other responsible parties at M.C.B. prices with the profit or loss resulting therefrom.

In this connection, it should be pointed out that an apparent loss in this item may be due to the failure on the part of the road to prepare the bills covering the repairs rather than to the M.C.B. prices being lower than cost. In order to stop these leaks, the first step is to separate charges to the account, Freight Train Cars—Repairs, between repairs to home cars and repairs to foreign cars. The repairs made to foreign cars should be reported to the bill clerk in such detail that he can immediately decide whether the defect is "billable" or "non-billable." Bills covering the "billable" defects should be prepared currently and the entire monthly charge to freight train car repairs on account of repairs to foreign cars should be covered either by bills for the "billable" defects or the approval of the charge for the "non-billable" defect by the proper official. It is the writer's opinion that the expense of such a system of auditing foreign car repairs would be paid for many times over by the additional amounts collected from other roads for repairs for which they are responsible under the M.C.B. rules.

Non-Billable or User's Defects

Having reduced the amount of these "non-billable" defects to a minimum by careful auditing of the account, there

will still remain substantial amounts to be charged to freight train car repairs for damage to cars for which the using railroad is responsible. The best yard-stick with which to measure these repairs is the foreign car day as these repairs should fluctuate quite closely with the number of foreign cars on the line. The records in this respect are well kept for foreign railroad cars as the car day is the basis of payment to the owner for the use of his cars, and while private line cars are paid for on the basis of mileage, the car days are also available.

Another important reason for the separation of the account, "Freight train cars—repairs" between repairs to owned and foreign cars and the segregation of non-billable defects from billable defects is the fact that the item of non-billable defects is one in which the transportation department should really be more interested than the mechanical department. These non-billable defects are "user's defects" caused by rough handling of cars in trains or yards for which the repairing railroad is responsible. The amount of this item should be reported currently to the transportation department so that the extent of the damage from this cause each month will be known.

In this connection, it should be borne in mind that damage due to rough handling is not confined to foreign cars. Home cars are equally liable to damage from this cause. While it probably is not practicable to segregate this damage to owned cars, it can be estimated from the cost of similar damage to foreign cars. In any event, the item is large enough to bear watching.

The repairs to owned cars made on foreign roads which are billed against the owner do not, as we have shown, include "user's defects" and the total cost of repairs to owned cars, both at home and abroad, is not available. In theory, the cost of non-billable "user's defects" to foreign cars on the home railroad is supposed to offset the user's defects to its own cars on foreign railroads, so that the total of the account "freight train cars repairs" will reflect the total cost of repairs to owned cars. The accuracy of this assumption is affected (1) by the element of profit or loss in repairs to foreign cars for billable defects, (2) by the varying relation of the car days of foreign cars on the home line to the car days of home cars on foreign lines, and (3) by the relative amount of rough handling on the home and on foreign lines.

In conclusion, the writer wishes to emphasize the importance of a careful current analysis of the account, "Freight train cars—repairs" and the necessity for a further sub-division of the account along the lines suggested in this article. The advantages to be gained from this sub-division may be summarized as follows:

1. A more satisfactory analysis of the causes of fluctuations in the account.
2. A more accurate determination of the actual cost of maintaining the freight cars owned by the carrier.
3. The determination of whether repairs to foreign cars in the case of billable defects are made at a profit or loss.
4. The segregation of non-billable defects from billable defects so that the transportation department may be kept informed of the amount of this expense for which it is responsible.

THE HOUSE COMMITTEE on Railroads in the Louisiana Legislature is considering a bill which prohibits the employment on railroads of switchmen, brakemen, flagmen or firemen who are unable to read English.

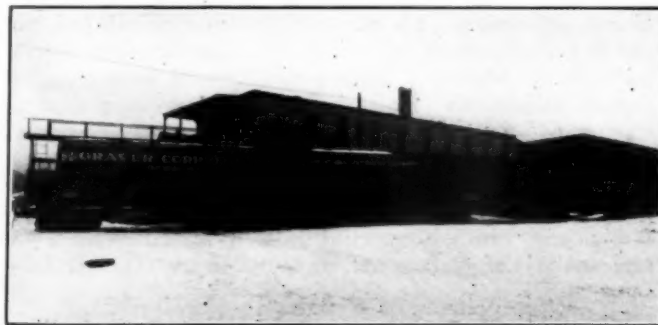
THE CHICAGO & ALTON is devoting the back page on its dining car menus to an exposition of the enterprises which furnish the road with the major part of its freight traffic. The first of the series, just issued, covers the fire brick industry of Missouri.

A Portable Refinery

A PORTABLE REFINERY, built by The Graver Corporation, East Chicago, Ind., for the Portable Refinery Company, Dallas, Tex., was recently put in operation at Luling, Tex. The various appliances and machinery are carried on specially built railway cars of steel construction. When a new oil field is opened up, the entire plant may be moved intact across the country to its new location. The process of moving consists of dismantling the detachable equipment, such as pipe connections, smoke stack and rectifying tower, and consigning the plant to its new destination.

The refinery may be placed in operation within 8 or 10 days after the cars are spotted. Four or five days are usually required to dismantle the connections and place it enroute in case it is desired to move.

It is electrically operated throughout and the use of steam is entirely eliminated. A seventy horse power Bessemer oil engine drives the generator that furnishes electrical current for the pumps as well as for the lighting system. The plant has a capacity ranging from 1,000 to 3,500 barrels of crude



An Oil Refinery Which May Be Moved Intact to a New Oil Field

oil in 24 hours, depending on the per cent of distilled product. In case it is distilling off 60 per cent of the crude oil, it can handle 1,000 barrels in 24 hours in six hour runs of 250 barrels each. The two main units of the refinery, namely, the power and the distilling equipment, are carried on two cars. The power car is 70 ft. long and the car that carries the distilling equipment is 65 ft. long.

While the plant is in operation, the cars do not rest on the wheels but are jacked up and lowered onto concrete foundation beams, which are placed across the tracks. While enroute the smoke stack, rectifying tower, pipe connections and other detachable equipment are carried in the usual railway equipment. The sides of the power car are divided into sections, which are equipped with doors that open upward. They may be raised when the plant is in operation, so as to extend out from the roof of the car.

On its first journey from East Chicago, Ind., to Texas, the refinery travelled more than 1,200 miles.

AMONG THE ROADS that have attempted to set to music the spirit of transportation are the Norfolk & Western, the Chicago, Rock Island & Pacific, and the Baltimore & Ohio. The title of the Norfolk & Western song is, "Norfolk & Western, I Love You," and was written by a man in the shops. The song is written to the tune of Auld Lang Syne and was sung for the first time at the Norfolk & Western efficiency meeting at Cincinnati, on May 22-24. That of the Rock Island is named "The Rock Islander" and was written by the director of the orchestra. It was broadcast from Station KYW, Chicago, on July 1, by the Rock Island Railway orchestra. The song of the Baltimore & Ohio is called "The Song of the Capital Limited" and the words and music were written by a woman employee.

A. S. T. M. Annual Meeting at Atlantic City

An Abstract of the Reports and Papers Presented Which Are of General Interest to Railway Men

THE TWENTY-SEVENTH annual meeting of the American Society for Testing Materials was held at the Chalfonte-Haddon Hall, Atlantic City, N. J., on June 24 to 27. The program was an exceedingly large one and simultaneous meetings were held in order to cover it. The total registration was 758 as compared with the previous year when 858 were registered, the largest attendance in the history of the society. The election of officers resulted as follows: president, F. M. Farmer, chief engineer, Electrical Testing Laboratories, New York City; vice-president, J. H. Gibboney, chemist, Norfolk & Western, Roanoke, Va.; members of the executive committee, William Campbell, A. E. Jury, Anson Marston and J. A. Mathews.

Corrosion of Iron and Steel

The sub-committee on inspection of the Fort Sheridan, Pittsburgh, and Annapolis tests reported additional failures at Fort Sheridan among the non-copper-bearing groups of sheets, with no failures in any of the copper-bearing groups. The first failures at Annapolis were recorded at the October, 1923, inspection, the sheets failing first being in the same non-copper bearing groups failing first at Pittsburgh and at Fort Sheridan.

The sub-committee on total immersion tests reported failure of all of the light-gage sheets at the Washington location, and about 60 per cent of the light-gage sheets at Annapolis. A comparison of the failures in the light-gage sheets in the Calumet mine test completed in 1921, and the corresponding groups of sheets in the Washington tests showed the average life of the sheets immersed in water from the City of Washington supply to be about $18\frac{1}{2}$ times longer than the corresponding sheets immersed in mine water. The tests thus far do not indicate any outstanding superiority for any one type of metal, and the presence of copper added to the various types of metal does not increase its resistance to corrosion, when the samples are totally and continually submerged in running water of acid or alkaline reaction. The sub-committee on tests of metallic coatings reported plans for conducting comprehensive exposure tests on metallic products coated by eight recognized commercial processes, the tests to be located at four different points representing as many varying conditions.

Cast Iron for Pipe

A paper was presented by Richard Moldenke describing recent investigations on cast iron for pipe, a summary of which is as follows:

Recent developments in the cast-iron pipe industry have brought the testing of this material into prominence. The desire of water works commissions of municipalities to get pipe of more resilient metal has led their engineers to attempt the stiffening of the existing specifications. To see if this is possible in commercial practice, the manufacturers of pipe have instituted an investigation. It was found that with present day material and practice even the existing specifications were too difficult to meet generally. Operating tests to improve the metal by varying mixtures also failed to give the desired results. Test curves were given for various bars used to judge the quality of the metal used. The relation of composition and strength of cast iron as illustrated by this comprehensive series of tests was also discussed. The final recommendations were that the whole subject of cast-iron pipe be made a matter of research, the engineers to study methods

of testing it, and the manufacturers of pipe to standardize their plants and practice, so that the best results may be obtained with materials that are commercially available.

Report of Committee on Timber

During the past year the committee continued its investigations conducted under the auspices of the Central Committee on Lumber Standards. The committee in reviewing the recommendations made at the Washington conference endorsed these recommendations as marking much progress in lumber standardization, but this endorsement is qualified as to detail. The committee proposed to use some of the basic principles agreed on in connection with future developments in proposing standard specifications for structural timbers.

The sub-committee on timber preservatives submitted proposed tentative methods of chemical analysis of zinc chloride, a revision of the standard methods of sampling and analysis of creosote oil, involving the float test of residue, a revision of the specifications for distillation thermometer in accordance with the recommendation of Committee D-15 on Thermometers, and another regarding distillation vessel for creosote oil and other high boiling materials. In presenting the tentative methods of analysis of zinc chloride, which were recommended as tentative, the committee recognized the imperfection of these methods in not including specifications for sampling. This matter has long been a subject of discussion and investigation by producers and users of zinc chloride and it is conceded that the accurate sampling of fused zinc chloride is a very difficult matter. It was hoped that some agreement on this question will be arrived at later.

The Shrinkage of Concrete

The influence of aggregates upon the shrinkage of mortar and concrete was discussed in a paper by Cloyd M. Chapman, which was based on an investigation conducted by Dwight P. Robinson & Co., into the causes of a very bad case of cracking of the wearing surface of a concrete floor. The cracking appeared to be due to unusual contraction of the top coat. This led to the making of a number of laboratory shrinkage tests on mortar and concrete specimens. The results show that the aggregates used in 1:2 mortar and 1:2:4 concrete may exert a decided influence upon the amount of shrinkage which takes place when the mortar or concrete hardens and dries out. Nine kinds of aggregates were used. Five of these were crusher screenings under $\frac{1}{4}$ in. and the other four were bank sands of varying degrees of fineness. The results indicate that in 1:2 mortar the contraction may differ as much as four to one depending upon the aggregate used. It was recommended that the subject should have very thorough further investigation because of its probable important bearing on the cracking of concrete construction.

The Use of Calcium Chloride in Concrete

Duff A. Abrams presented a paper on calcium chloride as an admixture in concrete of which the following summary is given. Calcium chloride and other soluble compounds of calcium-chloride base have been recommended as "accelerators" or admixtures in concrete for attaining rapid set and early strength. These investigations, which were originally begun in co-operation with Committee C-9 of the American Society for Testing Materials, were made to study the effect of such admixtures on the compressive strength of concrete and mortar. Strength tests of concrete and mortar were

made at ages of 2 days to 3 years using admixtures of calcium chloride from two different manufacturers and three proprietary compounds of calcium-chloride base. The tests covered a wide range of mixtures, consistencies, and curing conditions, and included studies with four different brands of cement. In one series of tests, magnesium chloride was included. For purpose of comparison parallel tests were made on concrete and mortar without admixtures. A few tests were made using calcium chloride in concrete cured at low temperature. Tests were made on about 7,500 compression specimens in three separate investigations.

The important conclusion from these tests are as follows: In the use of calcium chloride no advantage was gained for percentages of the commercial product greater than 2 or 3 per cent, corresponding to a chlorine content of 1 to 1½ per cent. This amount when used in mixes of about 1:5 and in consistencies suitable for building construction showed an increase in strength of from 100 to 200 lb. per sq. in. For richer mixes and drier consistencies the strength increase was greater and for leaner mixes and wetter concretes it was less.

The effect of calcium chloride in mortar was essentially the same as in concrete. The time of setting of the cement used was shortened by each of the admixtures. Flash set was produced by most of the admixtures when used in percentages somewhat in excess of those found to give greatest strength increases in concrete.

Joint Committee on Concrete and Reinforced Concrete

The joint committee on concrete and reinforced concrete presented its second report on this subject in the form of proposed standard specifications for concrete and reinforced concrete. The committee has under consideration supplementary specifications covering special uses of concrete and reinforced concrete. While the proposed specifications are not yet available, it is hoped to have them published in the August proceedings of the American Society of Civil Engineers, one of the member bodies sponsoring this committee. A number of departures have been made in the proposed specifications over those of the previously submitted tentative specifications. Some of the items affected are those on the control of the quality of concrete, the aggregates, the protection of the reinforcement, joints, the formula for reinforced columns, the method of depositing concrete and others. As a part of its work the joint committee sponsored two field tests for the purpose of determining whether its recommendations were practical, especially as regards the provisions for

the control of the quality of the concrete. These tests were on the concrete used in the construction of a building of the Victor Talking Machine Company, Camden, N. J., and of the Newark Bay bridge of the Central of New Jersey. The results of these tests were presented in a paper by W. A. Slater, which will probably be published in conjunction with the specifications.

Other Reports and Papers

Among the other reports and papers which were presented and which are of interest to railway men are the following: Committee D-10 presented a report on shipping containers which discussed various tests made by the Forest Products Laboratory and other organizations. Committee A-1 presented a report on steel which included tentative specifications for high speed tool steel, methods for sampling finished steel material for check analysis, recommended revisions of specifications for structural steels, wheels, tubes, boiler steel and others. The joint committee on investigation of phosphorus and sulphur in steel presented a preliminary report of an investigation on the effect of sulphur on six heats of basic open-hearth 0.20 per cent carbon steel with residual sulphur content of from 0.03 to 0.08 per cent. The joint committee also reported on further tests of rivet steel. Committee D-8 submitted specifications for high-bitumen coal tar pitch for use in damp-proofing and waterproofing above and below ground level. It also recommended revisions of the tentative specifications for asphalt, coal-tar, pitch, mastics, grouts and methods of testing mastics. D. J. McAdam, Jr., presented a paper on accelerated fatigue tests and some endurance properties of metals which described a method by which the fatigue failure of metal specimens is greatly accelerated. The test is an actual break down test and a considerable saving in time is effected. Committee A-7 on malleable castings presented a progress report recommending the advancement to standard of its tentative revisions in the specifications of malleable castings and also discussing the question of machineability and its relation to the physical properties of malleable castings. A paper by I. F. Morrison and H. R. Webb discussed the effect of finely divided lignite coal on the strength of concrete in which was shown the results of strength tests on concrete containing finely divided lignite coal. Sand containing coal, when subjected to the colorimetric test gives results which would make the use of such sand questionable. It was found that the decrease in strength of the concrete was much less than would be expected, being less than 10 per cent for ages up to one year.



An Old Style Passenger Car on the Czechoslovak Railways

Gray Charges Executives with Safety Duties

Message of Union Pacific President Enlarges Success of Fourth Annual Safety Meeting

THE BUSINESS OF SAFETY was again given a prominent place in railway discussions and renewed emphasis placed upon its importance when the Safety section of the American Railway Association held its fourth annual meeting in the Newhouse hotel, Salt Lake City, Utah, on June 24, 25 and 26. With a record attendance of 235 officers from the United States and Canada and inspiring addresses from Carl Gray, president of the Union Pacific; R. H. Aishton, president of the American Railway Association, and others, there is no question but that the meeting will have a large effect on the success of safety work to be carried on by railroads during the remainder of the year. The meetings were presided over by the president, Isaiah Hale, safety superintendent, Atchison, Topeka & Santa Fe. At the conclusion of the meeting the following officers were elected for the coming year: Chairman, H. A. Adams, assistant to general manager, Union Pacific; first vice-chairman, Robert Scott, director of safety and insurance, Atlantic Coast Line; second vice-chairman, T. H. Carrow, Pennsylvania; members of the Committee of Direction: C. T. Dailey, Oregon Short Line; D. H. Beatty, Southern; C. E. Hill, New York Central; F. M. Metcalfe, Northern Pacific; C. H. Blakemore, Norfolk & Western; J. G. Fitzhugh, Gulf, Colorado & Santa Fe; J. B. Monahan, Southern Pacific, and D. G. Phillips, Wabash.

Keep Men on Firing Line Interested, Says Gray

The opening address was made by Carl Gray, president of the Union Pacific. Speaking on the subject of accident prevention from the executive's standpoint, he took occasion early in his remarks to emphasize the importance of good foundation work in safety organization. "The foundation work of a safety organization," he said, "is of paramount importance. The work will not flourish under haphazard or catch-as-catch-can methods. At the beginning some very definite ideas and aims must be shaped into a program and the officers and men must be fully advised of the endeavor as well as impressed with its importance. Distinction is made between the officers and men for the reason that we recognize the fact that those employees commonly referred to as 'the men' in a large degree follow the example set by their officers and the degree of interest which will be displayed in the work by the men who are our real safety evangelists will be determined by the interest which is evinced by their officers. Accident prevention reaches its highest point of achievement when the entire personnel are unitedly in sympathy with the work and are aggressive in their efforts to promote it." As illustrating the effectiveness of organization in safety work Mr. Gray called attention to the fact that where the total reportable casualties on the Union Pacific in 1913 numbered 7.72 per 100 employees, it was only 1.36 in 1923. The reduction since 1922 was 23.41 per cent. Mr. Gray referred to safety as the amalgam which unites all branches and grades of railway service and insisted that the executive must make it his duty to see that it is properly organized, has a comprehensive program and that officers and men are fully advised of the purpose and intent of the movement. "We have found the safety organization the melting pot on our railroad," he said "and dismissing for the moment all other good that has resulted from the movement, this one feature alone has made it worthwhile.

"Beginning as a movement for employee safety, one of its principal activities is now dealing with the public as to its

safety," continued Mr. Gray, "and the success of public safety work is partially due to the better relations now existing between railroads and the public as the result of the better policy of publicity that the roads are now pursuing." Referring to the employee's safety he took occasion to mention the growing importance of considering the uses to which a man puts his time while off duty, saying that "while as employers we cannot undertake to interfere in the personal lives and morals of the men, experience has taught us that a man who is not a good moral character in his private life cannot be depended upon for safety while on duty." When referring to the grade crossing situation Mr. Gray stressed the importance of educational work among children, saying that "unless we reach the youth of our land and impress them with the seriousness of the situation we will be unable to reduce this terrible (crossing) toll."

Aishton Favors Periodic Physical Examinations

R. H. Aishton, president of the American Railway Association, following Mr. Gray, stated that the two questions uppermost in the public mind are: are the railroads furnishing adequate transportation, and, are the railways being operated economically and efficiently? "As to the first question," he said "there can be no doubt, as the record of the roads during the past year and one-half answers in the affirmative. As to the second question, one of the means by which the public judges railway efficiency and economy of operation is operation without the occurrence of avoidable accidents and it would seem that the utmost should be done in accident prevention work on this account." He stated that the great amount of publicity given to the roads' efforts in crossing prevention work had reacted favorably upon the public mind towards railroads. Mr. Aishton dwelt at some length upon the need for the periodic examination of employees, stating that the medical and surgical section of the association had made a report on this matter which would be submitted to the safety section for its recommendation. "Investigations into recent accidents," he stated, "makes the question one of considerable importance as these investigations seem to indicate that periodic physical examinations rather than examination only upon promotion are urgently needed."

Over 60,000 Deaths in Last Eight Years

A total of 63,016 persons were killed and 1,310,732 more or less seriously injured during the last eight years as a result of railway accidents, according to the report presented

EMPLOYEE CASUALTIES, ALL U. S. ROADS

Year	Killed	Injured	Employees
1888	2,070	20,148	.....
1900	2,550	39,643	1,017,653
1905	3,361	66,833	1,382,196
1910	3,382	95,671	1,732,435
1915	2,152	138,092	1,542,209
1917	3,199	174,247	1,780,235
1918	3,419	156,013	1,897,741
1919	2,138	131,018	1,960,569
1920	2,578	149,414	2,072,971
1921	1,458	104,849	1,711,281
1922	1,657	117,197	1,642,736
1923	1,866	148,146	1,879,770

at the meeting by the Committee on Statistics, of which T. H. Carrow, Pennsylvania, is chairman. This is a yearly average of 7,900 persons killed and 164,000 injured. The estimated yearly cost of injuries to persons was reported at

\$50,000,000. During 1923, 7,335 persons were killed and 171,712 persons injured.

The number of employees killed on the class I roads in 1923 was 1,866, while 148,146 employees received more or less serious injuries. The relationship of these casualties to those in previous years was brought out by the table on the preceding page.

This shows that while the deaths in 1923 were less than in any year prior to 1920, they increased over 1922 and that injuries show a marked increase over 1922 and 1921. It was stated, however, that so far this year the accidents among employees show a decrease.

With the aid of a table based upon studies of the Interstate Commerce Commission reports, it was shown that there were 27,497 accidents involving trains in 1923 as compared with 21,594 accidents of this sort in 1922. The table follows:

	TRAIN ACCIDENTS ALL U. S. RAILROADS					
	1923 Acci- dents	1922 Acci- dents	1923		1922	
			Killed	In- jured	Killed	In- jured
Collisions	7,115	5,611	134	2,396	195	2,536
Derailments	16,708	13,155	215	2,479	187	2,226
Locomotive boiler accidents...	67	49	43	60	24	48
Other locomotive accidents...	971	805	...	15	1	31
Miscellaneous train accidents...	2,636	1,974	20	208	9	81
Total	27,497	21,594	412	5,158	416	4,922

Increases took place in all classes of train accidents, particularly in collisions which increased from 5,611 in 1922 to 7,115 in 1923, and in derailments, which increased from 13,155 in 1922 to 16,708 in 1923. Attention was called to the fact that these are accidents involving the condition of equipment and track and the observation of rules, and by no means arise from causes inevitable in character as indicated by the fact that no train accidents are encountered on some roads.

The analyses made by the Committee of the train service accidents brought out the fact that fatalities at grade crossings had grown from 1794 in 1922 to 2,246 in 1923, which is an increase of 25.19 per cent and that injuries increased from 5,258 in 1922 to 6,207 in 1923, which is an increase of 17.85 per cent. A substantial increase was also shown to have taken place in fatalities and injuries resulting where persons were struck or run over by cars or locomotives, the fatalities from this cause amounting to 2,618 in 1923 and the injuries to 2,313. These two classes of accidents compose the bulk of all train accidents, which resulted in 6,510 persons killed and 51,306 persons injured.

Only 463 persons lost their lives from non train accidents in 1923 but 115,248 persons received injuries from this cause, as compared with 86,882 persons in 1922. Most of these accidents were suffered by employees. Of these injuries, 12,631 resulted from handling rail, ties and bridge timbers; 13,019 arose from handling freight and supplies and 14,746 from using various hand apparatus. The largest number of deaths from any one cause was found to have occurred from motor car accidents.

It was a conclusion of the Committee on Statistics from its study made of accidents for 10 years that only 5 per cent of the total number of accidents are attributable to physical conditions, that 10 per cent arise from a violation of rules and other forms of negligence and that fully 85 per cent arise from carelessness, thoughtlessness, absentmindedness, indifference, ignorance or misadventure. The preventative measures recommended were, (1), improved design of construction, maintenance and operation; (2), improved training, supervision and discipline, and, (3), safety organization and education.

The safety section adopted a resolution that the report of the Committee on Statistics, that avoidable accidents can be reduced 35 per cent in six years, be accepted as the goal towards which to work during this period.

The Grade Crossing Problem

In a paper on the highway crossing situation Charles E. Hill (N. Y. C.), enlarged upon the alarming situation presented by the grade crossing, pointing out that the average number of casualties at the grade crossings at present is 30 per day as compared with 9 per day 12 years ago. This is an increase of 233 per cent, while the population of the country has increased only 15 per cent. It was his opinion, however, that in seeking to reduce this average it is futile to depend solely upon the elimination of crossings for, as he pointed out, all the crossings eliminated in 1922 amounted to only 706, although their cost approximated \$70,000,000, while during the same period 4,560 new crossings were added, leaving 256,362 grade crossings in the United States at the present time.

"In analyzing accidents of this character," continued Mr. Hill, "we find that 70 per cent occur in daylight and 63 per cent at crossings where the view is entirely unobstructed and, contrary to the general belief, not only do most of these accidents occur in daylight and where the view is open but at crossings with which drivers are entirely familiar. Further, one out of every seven crossing accidents results from drivers running into the side of moving trains. In making observations to determine the degree of care exercised by drivers in approaching railway-highway crossings it was found that about 25 per cent did not use the care requisite to safety and that about 5 per cent were extremely reckless, having no thought of their personal safety or the safety of others.

"We must proceed upon the theory that there is a joint responsibility between the railroads and the public at large. The duty of the railroads lies largely in train operation, crossing maintenance and crossing protection. It is the daily occurrence for reckless drivers to disregard audible or visual signals, run down crossing flagmen and run through crossing gates in the path of approaching trains with disastrous results.

"A total of 16 states have promulgated rules requiring motor vehicles operated as common carriers to stop before driving over railroad crossings, although some of these states have not applied this rule to motor vehicles carrying freight. Some of our states have laws requiring the driver to slow down either to a definite speed, usually 10 miles per hour, or to a reasonable speed upon passing the advance warning sign 300 ft. from the crossing and not to increase his speed until after the crossing has been passed. This is a good law and a reasonable requirement and if it is adhered to strictly, crossing accidents will be greatly diminished. Six states have positive stop laws in various forms all of which have proved effective in the reduction of accidents of this character.

"One of the most forward steps that has been made looking towards constructive efforts to reduce accidents of this character was a national conference at Chicago this year, participated in not only by the National Association of Railroad Utilities Commissioners but by representatives of the American Automobile Association, the National Automobile Chamber of Commerce, the state highway departments, the National Safety Council, the railroads and other interested organizations and agencies. The unanimity of thought that found expression at this conference has formed a nucleus around which will be woven something tangible and effective."

Thomas E. McKay, president of the Public Utilities Commission of Utah, in an address made before the meeting on the crossing problem, described the responsibility of the utility commissioners as extending to the proper location of crossing, when the roads and railroads are built as well as to their elimination. "The Utah Utilities Commission and the highway commission," he said, "are co-operating with the railroads for the elimination of crossings at the time the roads are constructed."

Further statistics relative to the grade crossing situation were presented in the report of the Committee on the Preven-

tion of Grade Crossing Accidents, of which H. A. Rowe (D., L. & W.), is chairman. This report shows that for the months of June, July, August and September, 1921, there were 685 deaths and 1,691 injuries, or a total of 2,376 casualties, giving a ratio of 1 casualty to 4,397 automobiles in use. During the same period in 1923 there were 859 deaths and 2,124 injuries, or a total of 2,983 casualties, giving a ratio of 1 casualty to 5,029 automobiles, which, the committee pointed out, indicates that while the total number of deaths and injuries is growing rapidly the ratio of injuries to automobiles is descending. It was reported that on December 31, 1923, 15,092,177 automobiles and trucks were registered in the United States, which is equivalent to one motor car for every seven persons in continental United States.

An interesting address on the locomotive engineer's viewpoint on the crossing accident situation was given by L. H. Collett, who runs a fast passenger train on the Santa Fe through the San Joaquin valley. Mr. Collett stated that of 20 accidents that occurred on the Valley division of the Santa Fe in a given period, 19 of the automobiles approached from the left side of the train. "As the engines on this division are oil burners," he said, "the fireman is always in his seat and there is no reason for his not keeping a constant lookout for approaching vehicles."

In commenting on Mr. Collett's address, H. M. Mayo, Southern Pacific, stated that on his road about 70 per cent of the automobiles involved in accidents at crossings came from the left side of the train and that the firemen should be made to accept the responsibility for keeping a sharp lookout and warning drivers on the highway.

J. A. Gallagher, commerce and valuation attorney of the Denver & Rio Grande Western, speaking further on the crossing situation as a representative of the receiver, T. H. Beacom, owing to the latter's inability to attend, called attention to the fact that "there are many more accidents on the highways at other than railroad crossings than there are at crossings. The increase in accidents at other than crossings last year," he said, "was 52.4 per cent, while at crossings the increase was 25.5 per cent. Not elimination but regulation at grade crossings is the crying need, and drivers must learn to use the same amount of effort in protecting themselves as they expect the roads to use in their behalf."

Round Table Discussions Develop Many Pointers

A round table discussion of the causes of accidents and their elimination was an important part of the convention. Under the title of "Practical Pointers on Crossing Accidents," A. G. Rohweder, Duluth, Missabe & Northern, urged that men be forbidden to change globes in headlights while trains are in motion, calling attention to the fact that several firemen had lost their lives this way during seven months in the northwest alone. He stated that poking down sand while engines are in motion is also a prolific cause of accidents among firemen. Speaking of other than the transportation department accidents, he urged the rating of section foremen according to the number of men in their gangs who are injured, advising all foremen by bulletin or otherwise of their standing.

Mr. Hinkley, Oregon Short Line, discussing Mr. Rohweder's address, stated that the supervisor is more responsible than any other officer for accidents to his men and that no shop is safer than its superintendent makes it and that the safety performance of an operation division is an exact reflection of a superintendent's attitude towards the entire subject of safety.

The responsibility of supervisors for accidents was emphasized by Robert Scott, Atlantic Coast Line, in a paper on accidents to track men, bridge men and building men, while calling attention to the importance for safety educational work among the construction and maintenance forces. "To my mind," said Mr. Scott, "there is no better way of ac-

complishing this than by placing supervisors on safety committees and thus securing their interest in the work of preventing personal injury. The foreman is the determining factor in safety. If he is indifferent, the men will be indifferent, but if he believes in safety, his men will come to believe in safety. Discipline has a place in the work of accident prevention but in the long run the foreman must lead his men into safety, not drive them." Mr. Scott included among the necessary qualifications of foremen the knowledge of safety practices, a capacity to interest his men in safety and close supervision, as illustrating the importance of which, he mentioned the large percentage of injuries that occur in handling rail, etc., which arise from lack of system in the work.

Continuing the round table discussions D. L. Phillips, (Wabash), presented a paper on safety devices on engines, cars and cabooses, in which he emphasized the importance of uniformity of standards among the different railroads with regard to cars and other equipment that leave the owning road. "It is important in promoting safety," said Mr. Phillips, "that when a trainman approaches the place where a coupling is to be reached, for instance, he will know exactly where to reach, whether to push or pull, etc." As an illustration of the effect of lack of uniformity on a railroad in causing injuries he mentioned a case where a number of switchmen were getting hurt in getting off the leading footboards of some new switch engines which had been equipped in full compliance to the law, but the footboards of which were six inches shorter than those to which the switchmen had been accustomed. Maintenance of the safety devices he pointed out is also a factor not to be overlooked in reducing the number of injuries that occur in carrying out this class of work.

Numerous other phases of safety work received the attention of the convention. E. E. Mann, (N. Y. C.), read a paper on good housekeeping in yards, on side tracks, etc., and E. E. Cott, (H. V.), read a paper on the affiliation with the local safety council. J. D. White, (I. C.), discussed the question of the problems arising in going to and from work, and M. McKernan, (M. P.), elaborated on the foreman's protection of his men. In addition W. F. Johnson, (N. Y. C.), spoke on the enforcing of safeguards, while W. F. Braden, (B. & O.), developed the importance of floor and platform maintenance as a factor in preventing accidents in the mechanical departments while trucking material. An informative address was also made by L. R. Palmer, conservation engineer of the Equitable Life Insurance Company, who showed by lantern slides the accomplishments of railroads in accident prevention work, and the degree of success of each road within their respective jurisdictions.

Gold Star President and Scoutmaster Speak

A special feature of the convention was an address by Mrs. Max Mayer of Iowa, president of the Gold Star Mothers, who told of the need for safety work in the home and the necessity of extending welfare work to the families of employees. She particularly urged that efforts be made to have the wives of foreign born employees admitted to citizenship as the admission to citizenship of a man no longer applies to his wife, and her citizenship is an important factor in enlisting her support of safety work. Richard R. Lyman, national executive, Boy Scouts of America, also addressed the meeting, telling of the scouts' training in safety and explaining how this training may be taken advantage of by the railroads in pursuing their public safety activities. A further division from the regular program was the telegraphic announcement from L. W. Baldwin, president of the Missouri Pacific, that the 40,000 employees of the Missouri Pacific had organized Stop, Look and Listen clubs, similar to those organized by employees of the Illinois Central and other railroads.

Relation of Motor Vehicle to the Railways*

By Sir Henry Worth Thornton

President and Chairman, Canadian National Railways

IT MUST BE QUITE CLEAR that the motor vehicle, so far as it affects the railway, may be considered from two standpoints: (1) as a passenger facility and (2) as a freight facility.

As a passenger facility, it, of course, has to be judged by the ordinary standards the public is accustomed to apply to passenger accommodation, namely: (1) its ability to render regular, comfortable, safe, adequate and satisfactory service as efficiently as possible under all ordinary conditions; (2) the cost of the service.

There does not appear to be any doubt but that the motor vehicle might quite reasonably be expected to fulfill these conditions in regard to a certain limited class of passenger traffic, particularly on branch lines and in large terminals, thereby supplementing the existing railway passenger accommodation and, in some cases, permitting the railways to eliminate altogether or at least reduce the volume of non-remunerative passenger service.

From the standpoint of the transportation of freight, however, adjustment of the motor truck bids fair to develop into a factor of some considerable importance in dealing with certain classes of traffic, for example: (1) the haulage of commodities from the farm to the railroad or water shipping point; (2) the use of the motor truck in relieving congested terminal conditions; (3) the use of the motor truck in radial operations from large cities in the delivery of less-than-carload lots of merchandise and raw materials; (4) in the haulage of perishable farm and dairy products, such as milk, fruit and vegetables; (5) in the operation in short hauls between centers of population, where the truck offers a special degree of service in the carriage of commodities from the consignor to the store door or home of the consignee, where time is an important factor; (6) in longer hauls where rail development has not been sufficiently extensive.

Store Door Delivery in Canada

In Canada, as in England, store door delivery has been adopted as a solution of the problem of the freight house congestion and for a long time carriers have provided in the principal distributing centers a cartage, or a trucking service, between their freight terminals and the warehouses or store doors of the "traders."

The service is operated by the carriers under contracts or agreements with teaming companies acting as their agents. It applies to traffic rates in the Canadian Freight Classification as fifth class or higher, less than carload and carload, with the exception of bulk freight or articles weighing 2,000 lb. or over, per piece or package.

Tariffs are issued by the Canadian carriers for the teaming service and are filed with the regulating commissions as terminal charges. The rates named in the tariffs apply only in the areas embraced in what is termed cartage limits.

In the territory west of Port Arthur cartage tariffs are not issued by the carriers, although in the principal distributing centers a similar service is provided by the large teaming companies operating in connection with the railways, with the exception that the teaming companies themselves issue rate schedules.

We have not as yet made any experiments in the way of replacing our existing way freight services by the utilization of the motor truck operating on highways. We have, however, been watching with considerable interest the development

along these lines made by private individuals in conjunction with the movement of supplies for limited distances to and from manufacturing plants and by private trucking concerns. We are also utilizing the motor truck in some of our larger terminals for the transfer of L. C. L. freight to and from connections and between freight sheds. This practice has so far proved both satisfactory and economical.

Self-Propelled Rail Cars

In addition to this, we have been experimenting with various types of self-propelled rail unit cars, largely for passenger and baggage, or express services, to meet one or another of the following conditions: (1) to give a frequent passenger service on sparsely settled branch lines, or parts of main line adjacent to market towns or junction points; (2) to connect junction points, on important main lines, with the town or small city situated within a few miles of the main line; (3) to give a group of towns, situated on a main line or important branch line, a frequent connecting service over and above through main line trains; (4) to connect small summer resorts, golf clubs, etc., to branch line or through main line service; (5) to handle milk of a limited amount to a distributing or connecting point; (6) to provide connections to small suburbs.

Conclusions

If any discussion such as this is to be constructive in character, it is essential that conclusions should be thrown into bold relief for the purpose of focussing subsequent argument. Therefore I venture to place before you the following summary of the subject in the hope that it may furnish a fruitful field for constructive argument.

1. Motor propelled vehicles promise to become economical adjuncts to the services performed by railway companies, both on their own lines and on the highways, and an important and useful field exists for further investigation in this direction.

2. The attitude of the railway companies toward motor transportation as it is generally and broadly known should not be hostile, but an effort should be made to harmonize both with the object of providing to the community a constantly improving transportation service.

3. The constantly increasing volume and weight of motor vehicles traveling upon the highway demands a roadbed of more permanent character and provision of some form of assessment in some measure proportionate to the use made of the highway.

4. Since motor transport is likely to play a constantly increasing part in the welfare and economic life of the community, companies engaged in the industry will sooner or later have to contemplate the same degree of regulation with respect to services and charges as is now imposed upon other common carriers.

A SUMMARY OF TRAIN ACCIDENTS in the United States in the three months ending December 31, 1923, as given in a memorandum issued by the Interstate Commerce Commission, was published in the *Railway Age* of March 29, 1924, page 854. The full bulletin, which is Accident Bulletin No. 94, now issued, contains, in addition to the summaries, 12 pages of tables giving the total casualties on each Class I railroad. At the bottom of each table, there is added an item showing the total for all roads of Class II and Class III and for switching and terminal roads. There is also a table showing the number of persons killed and injured in each State. This latter table has three heads: train accidents, train service accidents and casualties at highway grade crossings, the last mentioned being included in one or the other of the first two columns. The highway crossing accidents are further sub-divided so as to show accidents in which automobiles were involved. The total killed at crossings in the three months was 655; killed in automobile accidents at crossings, 512.

*An abstract of a paper read at the World Motor Transport Congress at Detroit, Mich., on May 21.

Customer Ownership—Solution of Many Railway Problems

By L. F. Wiegand

Manager, Investment Department, Potomac Edison Company, Hagerstown, Md.

OF ALL THE ECONOMIC PROBLEMS confronting the country those having to do with the relations between the public and the railroads are among the most important ones.

The railroads have been hampered in every way for the last 20 years. The only permanent remedy is customer ownership.

What is customer ownership? It is simply this, that its shippers, riders, patrons and residents along its lines should be its stockholders. Several of our large roads think because they have many thousands of stockholders they have accomplished this result. This is clearly a mistaken idea. An analysis of these holdings shows that most of the holders live off the lines, or the ones in the larger cities living on the lines, purchased their stock from brokers and bankers and actually know nothing of the railroad itself other than their dividend checks. Also many are speculators, not investors.

On the other hand consider what real customer ownership aims to do. If these same roads had secured these stockholders through the customer ownership plan, that is, sold them direct themselves through their own investment departments, not merely to get their money as the brokers and bankers must do, but by coming in contact with them personally, several distinct advantages follow:

1. This contact will create a much clearer and better understanding of the railroad business, hence a great deal of unjust criticism and condemnation will be eliminated.
2. Customer ownership creates a permanent favorable attitude toward the roads in all the various communities—tends toward ideal public relations.
3. There is the economic feature of investing home money at home and then spending the dividend money at home.
4. Employee ownership will be secured, thereby creating between the roads and their employees a better understanding which would tend to reduce their labor differences and largely eliminate strikes.

Functions of Investment Department

The only practical way for a railroad to secure customer ownership is to open its own investment department and sell its securities direct to its own patrons. The investment department will not merely sell securities but have many other important functions—as:

1. Education of employees.
2. Education of its patrons.
3. The actual distribution of its securities to its patrons and residents along the lines.

The cost is not excessive and in addition the permanent good will that follows is more important than money. This does not mean that roads can be financed entirely by this method or that they will cease to go to the large bankers and underwriters but will be an important adjunct. Large sums of money will be secured this way. In the financing of electric public utilities, bankers generally do not care to supply them capital unless they have customer ownership.

In 1923 over \$285,000,000 was secured by electric utility companies through Customer Ownership and it is predicted that in a few years this sum will reach a billion dollars annually.

Customer ownership of utility companies has been a blessing in disguise for the railroads. It has demonstrated its practicability and how to carry it out and most important of

all educated the public to buy good securities and generally promoted thrift. Railroads should profit by their sister utility companies' experience. Customer ownership is a highly specialized calling. Delegating this work to some other department is worse than ignoring it entirely. Recently a large eastern railroad informed me that it had tried customer ownership very unsuccessfully. In reality it delegated one of its assistant treasurers to look after this important work. Actual investigation revealed he did not even know what customer ownership meant and was already overburdened with treasury department duties and that he encourage a few brokers in several large cities to sell the road's preferred stock, which is not customer ownership in any sense.

As a matter of fact the customer ownership department will be one of the most necessary departments of any railroad and will require an executive, who has been trained and fitted by years of special experience and study along this line.

No less an authority than Samuel Insull, president of the Commonwealth Edison Company, of Chicago and several electric railway lines, had this to say regarding customer ownership of railroads:

"The advantages of these two things—customer ownership and employee ownership can best be visualized by considering the present state of our railroads where neither of them has been practiced. How much better off the railroads would be today if these ideas had been fostered by their managements! How much better off they might be in the future if adopted by railroad boards of directors!"

The strange part of it all is even our dividend paying roads have not had the courage to undertake the establishment of their own investment department to offer their securities direct to their patrons and shippers, which is the only way to make customer ownership successful.

Just like their sister utilities—the railroads will be forced into customer ownership in the near future regardless of what they now think.

What could be better for any railroad than to give its patrons an opportunity to purchase its securities. Surely nothing in the plan can harm the roads, and it is logical because every one knows that railroads are continually in need of ever increasing large sums of money and their patrons will invest their funds in railroad securities if the merits of such securities are fairly presented.

Think what will happen when customer ownership is a fact—the tide of public sentiment will turn in favor of railroads once more.



Viaduct at Selizeh, Near Ismid, Anatolian Railway

General News Department

The Railway Fire Protection Association is to hold its annual meeting at Richmond, Va., on Tuesday, Wednesday and Thursday, October 21, 22 and 23.

Fred W. Bender, signal engineer of the Central of New Jersey and the New York & Long Branch, was the recipient on June 28 of a testimonial dinner tendered by his subordinates in recognition of his having completed 25 years in the service of the road.

Collision at Buda, Illinois

In a collision of eastbound fast trains on the Chicago, Burlington & Quincy at Buda, Illinois, 117 miles west of Chicago, on the morning of June 30, about sunrise, four passengers, a fireman and a porter were killed and about 20 passengers were injured. The leading train, the Overland express No. 2, was standing at a coaling station. It is said that the following train, which was the fast mail No. 8, had run past automatic signals, cautionary and stop, set against it.

Various Precautions Against Fire

Members of the Railway Fire Protection Association, at a recent sectional meeting in New York City, discussed a dozen interesting topics connected with their work, in which various bits of news were brought out.

Tests of sprinkler heads recently made have led to the renewal of thousands of heads because of unsatisfactory conditions. One large railroad has installed over 10,000 heads of coated type. Other designs also have been introduced with a view to prevention of corrosion.

Three large railroads have introduced extension electric lights in roundhouses, accompanying a rule forbidding the use of torches inside of engine houses. Two other roads using torches regulate their management by putting them in charge of the custodian of the tool room, who keeps them in a metal cabinet.

Signal cabins where there is liability of fires in electric apparatus have in certain cases been supplied with extinguishers of the carbon tetrachloride type.

The existence of a gas pipe in the ground under or near railroad tracks is a definite hazard; one railroad has rejected a persistent request for the privilege of laying such a pipe, the request being based on the desire for an economical distribution of gas.

Lanterns should never be allowed to be kept in closed lockers. If lanterns cannot be cared for by a tool checker, a separate metal cabinet should be provided.

Wiring for dictaphones and calculating machines should not be connected with lighting circuits; should have pilot lights and the current should be cut off when machines are not in use.

Inspection of Pennsylvania Train Control Ordered

The Interstate Commerce Commission has granted the recent petition of the Pennsylvania for an inspection and test of the automatic train control apparatus installed and now in operation on its Lewistown division to the extent of ordering a preliminary inspection of the installation, but has denied the petition in so far as it concerned the extension of time in which to comply with the commission's orders of June 13, 1922, and January 24, 1924. The commission had previously declined to make the inspection asked by the Pennsylvania, in accordance with its general policy of declining to express an opinion on installations short of the complete installations required by its orders; but it has recently adopted a policy of making preliminary inspections on sections of not less than 20 miles and the present order provides for a preliminary inspection, when the required plans and drawings shall have been furnished, similar to that described in a press notice issued by the commission announcing its new policy of interim preliminary inspections. The press notice makes the same

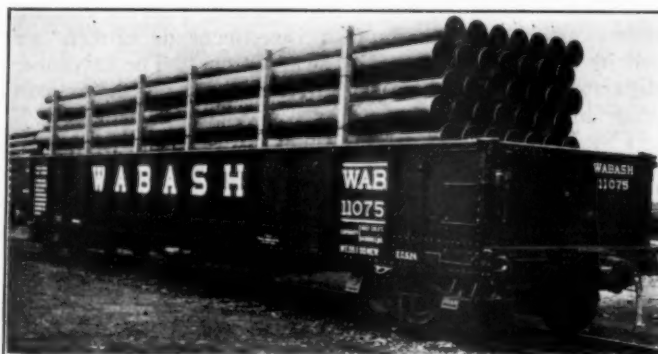
announcement that had previously been made in a letter from Commissioner Esch to Frank J. Sprague, president of the Sprague Safety Control and Signal Corporation, quoted in the *Railway Age* of May 3. The press notice says:

"The commission has had many requests that we approve plans and specifications and that we inspect and test short test installations and express our opinion as to whether the devices concerned would have our approval if installed. Manifestly we cannot undertake to do this and have declined to do so. Should, however, any carrier undertake a complete permanent installation in accordance with our order, and complete a section of not less than 20 miles on the portion of the railroad designated in the order and equip not less than such number of locomotives as the chief of our automatic train-control section and the carrier may agree upon, we will co-operate with the carrier, if requested, in making a preliminary inspection for the purpose of making such criticisms as may be deemed necessary, reserving final inspection and tests for approval of the complete installation as directed by the commission's order.

"By 'section of not less than 20 miles' it is understood that this has reference to route mileage and not track mileage. Where double tracks are used in the section, installation should be upon both tracks. As to the number of locomotives to be equipped and allocated to the section no formula is prescribed. The number of such locomotives to be determined for each carrier as a result of agreement or understanding with the commission."

Heavier Loading of Cars by the United States Steel Corporation

The efforts of the subsidiaries of the United States Steel Corporation to co-operate in the heavier loading of cars is shown in the results accomplished over a period of 13 years. From 1911 to 1923 the average carload in outbound traffic of the 13 shipping companies increased from 69,200 lb. per car or 34.6 tons in 1911 to 94,700 lb. or 47.35 tons in 1923. This was an increase of 25,500 lb. or 37 per cent—while the increase in the capacity of cars was probably not more than 10 per cent. With this heavier loading the number of cars used in the 13 years was 352,094 less than the



A Ninety-two Per Cent Capacity Load

number that would have been required if the average load had been no greater than in 1911. Iron ore shipments from the ore ranges of the Oliver Iron Mining Company are not included in the record as the ore is always loaded to full capacity of the cars.

The National Tube Company, Lorain, Ohio, a subsidiary of the United States Steel Corporation, recently loaded one of the Wabash new 50-ft. cars having a capacity of 140,000 lb., with 129,700 lb. of 14-in. wrought pipe or 92 per cent of the marked capacity. In the cars most commonly used, those of 100,000 lb. capacity, the

average load of 14-in. pipe is 65,000 lb., or 65 per cent of capacity. The length of the pipe ranges from 21 ft. to 24 ft. This shipment went to the Magnolia Gas Company, Pineland, Tex., and the freight amounted to \$1,089. The shipment was routed by way of the Wheeling & Lake Erie, the Erie, the Wabash, the St. Louis-San Francisco, the Texas Midland, the Texas & Pacific and the Gulf, Colorado & Santa Fe.

Forest Fires in Pennsylvania

The Department of Forests and Waters of the State of Pennsylvania has published a statement showing the estimated damage resulting from 1,147 forest fires occurring in that state during the year 1923, each one of which is said to have been caused by a railroad; and a list is printed showing 39 roads, with the number of fires caused by each. The total estimated area covered by the fires was 107,447 acres and estimated damage \$205,277; while the State expended on account of extinguishment of fires \$39,471. This cost is apportioned in the table to the different roads but just what service is represented in any particular case is not explained. For example, on one road two fires, doing damage amounting to \$50, cost the State nothing; on the Delaware & Hudson, where there were two fires doing \$48 damage, the cost to the State is given as \$42.35. The Pittsburgh & Lake Erie is charged with one fire, \$250; cost to the State sixty cents.

The statement below, copied from the published account, gives the 15 roads on which there were five or more fires each. The other 24 roads had from one to four each.

Railroad Company	No. of Fires	Estimated Area (Acres)	Estimated Damage	Cost of Ex-tinction to the State
Pennsylvania	415	34,667	\$82,444	\$16,643
Lehigh Valley	229	18,655	22,038	7,274
The Reading Company	132	21,219	44,162	4,791
Baltimore & Ohio	79	4,819	5,762	1,330
New York Central	51	7,663	16,512	1,184
Central of New Jersey	45	4,954	6,357	1,023
Erie	31	5,526	2,143	2,026
Pittsburgh, Shawmut & Northern	22	2,066	6,418	759
Buffalo & Susquehanna	22	1,271	1,284	663
Delaware, Lackawanna & Western	20	237	118	87
Western Maryland	19	620	1,900	239
Buffalo, Rochester & Pittsburgh	11	3,532	8,805	2,106
Huntingdon & Broad Top Mountain	9	287	555	199
Pittsburgh & Shawmut	6	286	1,415	179
Lehigh & New England	5	28	121	45

Argues That Crow's Nest Agreement Does Not Apply to Lines Built Since 1897

An important freight rate question was the subject of a conference last Friday and Saturday between the Canadian cabinet at Ottawa and the Canadian railways and shippers. That conference was called by the government in view of the fact that on July 7, unless some legislation by the Parliament of Canada is in the meantime passed to prevent it, the Crow's Nest Pass Agreement, which has been suspended for two successive years by Parliament in all its rates except those applying to grain and flour, will again become fully effective in regard to all the commodities specified in that pact. The railways are strongly opposing its restoration, also the industrial and commercial interests of British Columbia and the government of that province headed by Premier John Oliver. Those demanding its restoration are the three Prairie Provinces who were represented at the conference by H. J. Symington, a lawyer and freight rate expert of Winnipeg.

In his argument on Friday before the government and on behalf of the Canadian National and Canadian Pacific Railways Eugene Lafleur, a Montreal lawyer, made it clear that if the objections of the railways to the agreement's restoration were ignored and the pact again became effective the railways would insist upon a strictly legal interpretation of the Crow's Nest Agreement. Mr. Lafleur contended that the agreement, which was effected in 1897 between the government and the Canadian Pacific and by which the railway was obliged to reduce the rates on certain commodities of vital concern to Western Canada in return for federal assistance in the construction of the Crow's Nest railway branch in Alberta and British Columbia, applied only to the then existing lines of that railway, and could not be held to apply to one-half of the Canadian Pacific system. The Canadian National Railways would be compelled to lower their rates to meet the competition set up by the agreement only in such cases as

was necessary. Therefore, if the freight rate agreement came into effect he foresaw a situation where only one-half of the cities and towns of Ontario and of Western Canada would enjoy the reduction and the other half would still pay the existing rates. This would create wholesale discrimination in rates that would be intolerable.

Fruit would be shipped from London, Ont., to the West under the Crow's Nest Agreement, while a similar reduction would be denied to the Niagara Peninsula, as the latter was not then on the C. P. R. map. Also, as there was no through line to either Saskatoon or Edmonton in 1897, neither of these cities would benefit by the agreement, while their rival cities, Calgary and Regina, would. Thus the two Northern cities would be placed in an impossible position.

The returns to the Canadian Pacific showed, he argued, that on Western lines the earnings were 0.8 cents per ton per mile, while on Eastern lines they were 1.16 cents. This showed lower rates and lower earnings per ton per mile in the West than in the East. Last year the Canadian National had an operating loss on Western lines of over \$2,000,000. Their operating profit was made in Ontario and Quebec. The application made by the railways against the restoration of the agreement was not to void the contract of 1897, but simply a representation, Mr. Lafleur argued, showing that is restoration of rates from the East to the West and from Fort Williams to Western Canada would not only be a grave injustice to the section of the East not served by the Canadian Pacific, but it would also be an injustice to British Columbia, where the agreement never applied. The Crow's Nest scale of freight rates would create such rate disparities as not only to seriously handicap the traffic of the country, but would also provoke such a continuous rate agitation as would be ended only by the removal of these sections of the Crow's Nest Agreement and by submitting the matter to the Dominion Railway Board.

H. J. Symington, arguing for the Prairie Provinces and for the restoration of the agreement, contended that the government was obliged to fulfill its obligations to the shippers into and from the Western Provinces and give those provinces the reduced rates provided in the agreement. He reviewed the history of rate-making in Canada and argued that the only course was to make the pact again effective.

Announcement of the decision of the government will be made in Parliament this week.

Meetings and Conventions

The following list gives names of secretaries, dates of next or regular meetings and places of meetings.

- AIR BRAKE ASSOCIATION.—F. M. Nellis, 165 Broadway, New York City. Next convention, 1925, Los Angeles, Calif. Exhibit by Air Brake Appliance Association.
- AIR BRAKE APPLIANCE ASSOCIATION.—John Wright, Westinghouse Electric & Manufacturing Co. Meeting with Air Brake Association.
- AMERICAN ASSOCIATION OF DINING CAR SUPERINTENDENTS.—L. A. Stone, C. & E. I. Ry., Chicago.
- AMERICAN ASSOCIATION OF ENGINEERS.—C. E. Gray, 63 E. Adams St., Chicago.
- AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.—Grant Williams, 1341 Railway Exchange, Chicago.
- AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. L. Duncan, 332 So. Michigan Ave., Chicago.
- AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York. Next meeting, October 2 and 3, New York.
- AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—J. Rothchild, Room 400, Union Station, St. Louis, Mo. Next convention, 1925, Richmond, Va.
- AMERICAN ELECTRIC RAILWAY ASSOCIATION.—J. W. Welsh, 8 W. 40th St., New York.
- AMERICAN RAILROAD MASTER TINNERS', COPPERSMITHS' AND PIPE FITTERS' ASSOCIATION.—C. Borchardt, 202 North Hamilton Ave., Chicago, Ill.
- AMERICAN RAILWAY ASSOCIATION.—H. J. Forster, 30 Vesey St., New York, N. Y.
- Division I.—Operating J. C. Caviston, 30 Vesey St., New York, N. Y.
- Freight Station Section (including former activities of American Association of Freight Agents).—R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago, Ill.
- Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.
- Protective Section (including former activities of the American Railway Chief Special Agents and Chiefs of Police Association).—J. C. Caviston, 30 Vesey St., New York, N. Y. Annual meeting July 9-11, Brown Palace Hotel, Denver, Colo.
- Safety Section.—J. C. Caviston, 30 Vesey St., New York.
- Telegraph and Telephone Section (including former activities of the

- Association of Railway Telegraph Superintendents). W. A. Fairbanks, 30 Vesey St., New York. Next meeting, September 9-11, 1924, Quebec, P. Q.
- Division II.—Transportation (including former activities of the Association of Transportation and Car Accounting Officers).—G. W. Covert, 431 South Dearborn St., Chicago, Ill.
- Division III.—Traffic, J. Gottschalk, 143 Liberty St., New York.
- Division IV.—Engineering, E. H. Fritch, 431 South Dearborn St., Chicago, Ill. Next annual meeting, March 10-12, 1925, Chicago. Exhibit by National Railway Appliances Association.
- Construction and Maintenance Section.—E. H. Fritch.
- Electric Section.—E. H. Fritch.
- Signal Section (including former activities of the Railway Signal Association).—H. S. Balliet, 30 Vesey St., New York, N. Y. Next "stated meeting," Sept. 22, 1924, New Ocean House, Swampscott, Mass.
- Division V.—Mechanical (including former activities of the Master Car Builders' Association and the American Railway Master Mechanics' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill. Exhibit by Railway Supply Manufacturers' Association.
- Equipment Painting Section (including former activities of the Master Car and Locomotive Painters' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill. Next meeting, September 2-4, 1924, Chicago, Ill.
- Division VI.—Purchases and Stores (including former activities of the Railway Storekeepers' Association).—W. J. Farrell, 30 Vesey St., New York, N. Y. Exhibit by Railway Supply Manufacturers' Association.
- Division VII.—Freight Claims (including former activities of the Freight Claim Association).—Lewis Pilcher, 431 South Dearborn St., Chicago, Ill. Annual meeting, 1925, Kansas City, Mo.
- Car Service Division.—C. A. Buch, 17th and H Sts., N. W., Washington, D. C.
- AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago. Next annual convention, Oct. 21-23, 1924, Kansas City, Mo. Exhibit by Bridge and Building Supply Men's Association.
- AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—A. L. Moorshead, Industrial Engineer, Erie, New York City. Next meeting, May 13, 1925, San Antonio, Texas.
- AMERICAN RAILWAY ENGINEERING ASSOCIATION.—(Works in co-operation with the American Railway Association, Division IV.) E. H. Fritch, 431 South Dearborn St., Chicago. Annual meeting, March 10-12, 1925, Chicago. Exhibit by National Railway Appliances Association.
- AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—(See American Railway Association, Division V.)
- AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—J. A. Duca, Tool Foreman, C. R. I. & P. Ry., Shawnee, Okla. Annual convention, Sept. 3, 4 and 5, Hotel Sherman, Chicago. Exhibit by Supply Association of the American Railway Tool Foremen's Association.
- AMERICAN SHORT LINE RAILROAD ASSOCIATION.—T. F. Whittelsey, 1319-21 F St., N. W., Washington, D. C. Annual meeting, August 13-15, 1924, San Francisco, Cal.
- AMERICAN SOCIETY FOR STEEL TREATING.—W. H. Eisenman, 4600 Prospect Ave., Cleveland, Ohio. Next convention, Sept. 22-26, Commonwealth Pier, Boston.
- AMERICAN SOCIETY FOR TESTING MATERIALS.—C. L. Warwick, 1315 Spruce St., Philadelphia, Pa.
- AMERICAN SOCIETY OF CIVIL ENGINEERS.—Prof. J. H. Dunlap, 33 W. 39th St., New York. Regular meetings 1st and 3rd Wednesdays in month, except July and August, 33 W. 39th St., New York.
- AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York. Railroad Division, A. F. Stuebing, Chief Engineer, Bradford Draft Gear Co., 23 W. 43rd St., New York.
- AMERICAN TRAIN DISPATCHERS' ASSOCIATION.—C. L. Darling, 1310-1311 Mallery Bldg., Chicago, Ill. Biennial convention, July, 1925, Chicago.
- AMERICAN WOOD PRESERVERS' ASSOCIATION.—P. R. Hicks, Room 1146, Otis Bldg., Chicago. Next convention, 1925, Chicago.
- ASSOCIATION OF RAILWAY CLAIM AGENTS.—H. D. Morris, Northern Pacific Ry., St. Paul, Minn. Annual meeting, 1925, Winnipeg, Man.
- ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., Room 411, C. & N. W. Sta., Chicago. Next meeting, October 20-24, Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.
- ASSOCIATION OF RAILWAY EXECUTIVES.—Stanley J. Strong, 17th and H Sts., N. W., Washington, D. C.
- ASSOCIATION OF RAILWAY SUPPLY MEN.—A. W. Clokey, 1658 McCormick Bldg., Chicago. Meeting with International Railway General Foremen's Association.
- ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—(See American Railway Association, Division I.)
- ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—(See American Railway Association, Division II.)
- BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—John Nelson, Joseph E. Nelson & Sons, 3240 South Michigan Ave., Chicago. Meetings with convention of American Railway Bridge and Building Association.
- CANADIAN RAILWAY CLUB.—C. R. Crook, 129 Chaffin St., Montreal, Que.
- CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 626 North Pine Ave., Chicago. Regular meetings, 2nd Monday in month, except June, July and August, Great Northern Hotel, Chicago.
- CAR FOREMAN'S ASSOCIATION OF ST. LOUIS, MO.—R. E. Giger, 721 North 23rd St., East St. Louis, Ill. Meetings, first Tuesday in month at the American Hotel Annex, St. Louis.
- CENTRAL RAILWAY CLUB.—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 2nd Thursday, January to November. Interim meetings, 2nd Thursday, February, April, June, Hotel Statler, Buffalo, N. Y.
- CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.—A. S. Sternberg, Belt Ry. of Chicago, Polk and Dearborn Sts., Chicago. Annual meeting, September 23-25, Sherman Hotel, Chicago.
- CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S SUPPLY MEN'S ASSOCIATION.—Bradley S. Johnson, W. H. Miner, Rookery Bldg., Chicago, Ill. Meeting with Chief Interchange Car Inspectors' and Car Foremen's Association.
- CINCINNATI RAILROAD CLUB.—W. C. Cooder, Union Central Bldg., Cincinnati, Ohio. Meetings, 2nd Tuesday in February, May, September and November.
- CLEVELAND STEAM RAILWAY CLUB.—F. L. Frericks, 14416 Adler Ave., Cleveland, O. Meetings, first Monday each month, Hotel Cleveland, Public Square, Cleveland.
- DIXIE RAILWAY CLUB.—T. C. Schley, 71 Centi St., Mobile, Ala. Regular meetings, bi-monthly, second and fourth Fridays, Battle House Hotel, Mobile, Ala.
- EASTERN RAILROAD ASSOCIATION.—E. N. Bessling, 614 F St., N. W., Washington, D. C.
- FREIGHT CLAIM ASSOCIATION.—(See American Railway Association, Division VII.)
- GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—C. H. Treichel, Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3rd Friday in month, Room 1414, Manhattan Bldg., Chicago.
- INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Annual convention, August 19-21, 1924, Hotel Sherman, Chicago. Exhibit by International Railroad Master Blacksmiths' Supply Men's Association.
- INTERNATIONAL RAILROAD MASTER BLACKSMITHS' SUPPLY MEN'S ASSOCIATION.—George P. White, 747 Railway Exchange, Chicago. Meeting with International Railroad Master Blacksmiths' Association.
- INTERNATIONAL RAILWAY FUEL ASSOCIATION.—J. B. Hutchison, 6000 Michigan Ave., Chicago. Next annual convention, 1925, Chicago. Exhibit by International Railway Supply Men's Association.
- INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1061 W. Wabash Ave., Winona, Minn. Annual convention, September 9-12, Hotel Sherman, Chicago.
- INTERNATIONAL RAILWAY SUPPLY MEN'S ASSOCIATION.—F. S. Wilcoxen, Edna Brass Manufacturing Company, Cincinnati, Ohio. Meeting with International Railway Fuel Association.
- MASTER BOILER MAKER'S ASSOCIATION.—Harry D. Vought, 26 Cortlandt St., New York.
- MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOCIATION.—(See A. R. A., Division V.)
- MASTER CAR BUILDERS' ASSOCIATION.—(See A. R. A., Division V.)
- NATIONAL ASSOCIATION OF RAILWAY TIE PRODUCERS.—J. S. Penney, T. J. Moss Tie Company, St. Louis, Mo. Next convention, 1925, Chicago.
- NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.—James B. Walker, 49 Lafayette St., New York. Next convention, Nov. 11, 1924, Phoenix, Ariz.
- NATIONAL FOREIGN TRADE COUNCIL.—O. K. Davis, 1 Hanover Square, New York.
- NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. W. Kelly, People's Gas Bldg., Chicago. Annual exhibition at convention of American Railway Engineering Association.
- NATIONAL SAFETY COUNCIL.—Steam Railroad Section: E. R. Cott, Safety Agent, Hocking Valley Ry., Columbus, O.
- NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2nd Tuesday in month, excepting June, July, August and September, Copley-Plaza Hotel, Boston, Mass.
- NEW YORK RAILROAD CLUB.—Harry D. Vought, 26 Cortlandt St., New York. Sports outing, July 10, New York Athletic Club House, Travers Island. Regular meetings, 3rd Friday in month, except June, July and August, at 29 W. 39th St., New York.
- PACIFIC RAILWAY CLUB.—W. S. Wollner, 64 Pine St., San Francisco, Cal. Regular meetings, 2nd Thursday in month, alternately in San Francisco and Oakland.
- RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.—E. R. Woodson, 1116 Woodward Building, Washington, D. C. Annual meeting, July 8-11, Fairmont Hotel, San Francisco, Calif.
- RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 600 Liberty Bldg., Broad and Chestnut St., Philadelphia, Pa.
- RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 515 Grandview Ave., Pittsburgh, Pa. Regular meetings, 4th Thursday in month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.
- RAILWAY DEVELOPMENT ASSOCIATION.—(See Am. Ry. Development Assn.)
- RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—J. Scribner, General Electric Co., Chicago. Annual meeting with Association of Railway Electrical Engineers.
- RAILWAY EQUIPMENT MANUFACTURERS' ASSOCIATION.—H. A. Varney, Sunbeam Electric Manufacturing Co., Evansville, Ind. Meeting with Traveling Engineers' Association.
- RAILWAY FIRE PROTECTION ASSOCIATION.—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md. Annual meeting, October 21-23, Richmond, Va.
- RAILWAY REAL ESTATE ASSOCIATION.—R. H. Morrison, C. & O. Ry., Richmond, Va.
- RAILWAY SIGNAL ASSOCIATION.—(See A. R. A., Division IV., Signal Section.)
- RAILWAY STOREKEEPERS' ASSOCIATION.—(See A. R. A., Division VI.)
- RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa.
- RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, 30 Church St., New York. Meets with Telegraph and Telephone Section of A. R. A., Division I.
- RAILWAY TREASURY OFFICERS' ASSOCIATION.—L. W. Cox, Commercial Trust Bldg., Philadelphia, Pa. Annual meeting, September 18 and 19, Montreal, Canada.
- ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—P. J. McAndrews, C. & N. W. Ry., Sterling, Ill. Next convention, September 16-18, 1924, Hotel Commodore, New York. Exhibit by Track Supply Association.
- ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2nd Friday in month, except June, July and August.
- SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, Sunbeam Electric Manufacturing Company, New York City. Meeting with American Railway Association, Signal Section.
- SOUTHEASTERN CARMEN'S INTERCHANGE ASSOCIATION.—J. E. Rubley, Southern Railway Shop, Atlanta, Ga. Meets semi-annually.
- SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, P. O. Box 1205, Atlanta, Ga. Regular meetings, 3rd Thursday in January, March, May, July, September and November, Piedmont Hotel, Atlanta.
- SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—J. L. Carrier, Car. Serv. Agent, Tenn. Cent. Ry., 319 Seventh Ave., North Nashville, Tenn.
- SUPPLY ASSOCIATION OF AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—H. S. White, 9 N. Jefferson St., Chicago.
- TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo-Ajax Corporation, Hillburn, N. Y. Meets with Roadmasters' and Maintenance of Way Association.
- TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, 1177 East 98th St., Cleveland, Ohio. Next convention, September 9-14, 1924, Chicago. Exhibit by Railway Equipment Manufacturers' Association.
- WESTERN RAILWAY CLUB.—Bruce V. Crandall, 605 North Michigan Ave., Chicago. Annual meeting, May 23, Edgewater Beach Hotel, Chicago. Regular meetings, 3rd Monday each month, except June, July and August.
- WESTERN SOCIETY OF ENGINEERS.—Edgar S. Nethercut, 1735 Monadnock Bldg., Chicago, Ill.

Traffic News

The Gulf Coast Lines have issued a brochure entitled "Trading Figs for Dollars" which gives full information on the growing of the Magnolia fig in the Gulf Coast country. The folder is illustrated with scenes along the railway and the text includes letters from a number of large orchard owners relative to their experience with the Magnolia fig. The fig market, the financing of fig crops, the preparation of land, planting, fertilization, pruning, cultivation and the yield per acre are discussed at length.

The Maryland & Delaware Coast Railway which has taken over that portion of the Maryland, Delaware & Virginia east of Denton, Md. (long out of use because of insufficient business), announced on June 28 the opening of the line for both passenger and freight traffic. The company has two gasoline-driven cars for passengers and a 60-ton steam locomotive for hauling freight. Arrangements have been made with the Baltimore & Eastern, which operates the line from Love Point to Denton, and with the steamer lines to and from Baltimore, so that passengers will be carried through in five hours between Baltimore, Md. and Lewes, Del. It is expected shortly to open the line for traffic from Lewes southeast five miles to Rehoboth.

Freight Commodity Statistics

The Interstate Commerce Commission has issued its quarterly statement showing the freight tonnage transported by Class I steam railroads for the three months ended March 31, 1924. Below will be found a comparison, by general classes of commodities, of the tonnage transported during the first quarter in 1924 with the corresponding period in 1923:

Classes of commodities	Number of tons originated		
	Quarter ended March 31, 1923	Quarter ended March 31, 1924	Per cent of increase 1924 over 1923
Products of agriculture.....	26,448,413	25,551,856	*3.39
Animals and products.....	6,762,223	6,816,331	*.80
Products of mines.....	149,197,592	142,694,527	*4.36
Products of forests.....	28,916,197	29,583,432	*2.31
Manufactures and miscellaneous	62,374,935	61,830,406	*.87
All l. c. l. freight.....	10,503,297	9,875,874	*5.97
Total.....	284,202,657	276,352,426	*2.76

Classes of commodities	Total tons carried		
	Quarter ended March 31, 1923	Quarter ended March 31, 1924	Per cent of increase 1924 over 1923
Products of agriculture.....	55,009,747	54,192,534	*1.49
Animals and products.....	11,552,851	11,726,555	*1.50
Products of mines.....	274,720,638	261,062,452	*4.97
Products of forests.....	55,704,911	56,310,561	*1.09
Manufactures and miscellaneous	118,784,052	120,314,888	*1.29
All l. c. l. freight.....	17,191,544	16,574,396	*3.59
Total.....	532,963,743	520,181,386	*2.40

*Decrease.



Moscow-Samara Train—Note Potatoes on Front End of Locomotive

Commission and Court News

Court News

Provision in Lease of Railroad Held Rebate, Not Rent

The Pennsylvania Supreme Court holds that a provision in a lease of a railroad allowing the lessor 5 cents a ton for all coal shipped during the year exceeding 100,000 tons was a rebate and not a rent. Even though such a contract was lawful when executed, Congress could by subsequent enactments make it illegal.—State Line & Sullivan v. L. V. (Pa.), 120 Atl. 829.

Frightening Cattle by Headlight Not Actionable

The Nebraska Supreme Court holds that frightening cattle being driven over a crossing, by the headlight of a freight train standing on a side track 300 ft. distant, is not actionable negligence, where there is nothing to indicate that the engineer and fireman of the freight train could reasonably or probably have anticipated what happened.—Lawson v. Union Pacific (Neb.), 194 N. W. 682.

Injury in Course of Usual Work

Without Directions Not Actionable

The Texas Court of Civil Appeals holds that an injury to a trackman received in the course of his usual work of unloading cross-ties, without specific directions, as by slipping on a wet creosoted tie which the employee knew to be slippery does not render the railroad liable.—Melton v. Texas & New Orleans (Tex. Civ. App.), 254 S. W. 510.

Misstatement of Contents of Package

—Recovery of Increased Rate

The New York Appellate Division holds that a non-fraudulent misstatement of the contents of a package shipped by freight, on account of which a lower rate is charged than that fixed by the tariff, does not constitute a defense by the carrier for the loss of the goods in transit; but the carrier may recover the increased rate which should have been paid.—Gassman v. N. Y. C., 207 App. Div. 15.

Railroad May Refuse to Receive Freight

Where Strike Prevents Delivery

The Arkansas Supreme Court holds that a railroad is excused from receiving freight for a point where it cannot make prompt and expeditious delivery due to a strike of switchmen there (Kansas City, Mo.), which caused all railroads which entered that city to refrain from receiving freight from connecting carriers, and which strike was not induced or caused by the railroad.—Gage v. Arkansas Central (Ark.), 254 Ark. 665.

Fuse Plugs on Boilers—Boiler Inspection Act

The Texas Court of Civil Appeals holds that, while the Federal Boiler Inspection Act does not require the railroads to furnish boilers absolutely safe under all the conditions common to the service, and there are no regulations requiring boilers to be equipped with fusible plugs, the railroad would not thereby be absolved from liability for accidents resulting from the omission to furnish a fusible plug, "if so simple a device was essential to the safety of a boiler."—Schaff v. Perdue (Tex. Civ. App.), 254 S. W. 151.

Burden of Proof of Timely Claim

of Loss of Shipment on Shipper

The Minnesota Supreme Court holds that a letter describing generally lost parcels and listing the contents is a sufficient claim, though no formal demand for money damages is made; but the claim must be made within the time limited by the bill of lading, or there can be no recovery. What is a "reasonable time for delivery" is for the plaintiff to plead and prove, and where there

was no proof as to what is a reasonable time for the transportation of household goods from Walnut Grove, Minn., to Winnipeg, it was held the plaintiff had not established her case.—*Benson v. Davis* (Minn.), 194 N. W. 771.

Statutory Presumption of Negligence

Overcome by Testimony of Engineers

In an action for death the plaintiff's testimony only showed that the deceased, while trespassing on the track, was struck and killed by one of the defendant's locomotives, thereby making out a prima facie case of negligence under the Mississippi statute. The Mississippi Supreme Court held that the statutory presumption of negligence was overcome by testimony of the engineers of each of the defendant's locomotives which could have struck the deceased that they did not see him when he was struck and did not know he had been struck until told some time after.—*Mobile & Ohio v. Robinson* (Miss.), 96 So. 749.

Voluntary Settlement Precluding

Reimbursement Under Contract

In an action by a railroad company against a rubber company on an indemnity contract to save the railroad harmless from "all liability" growing out of a side track, the Supreme Court of the State of Washington holds that the railroad was not entitled to reimbursement from the rubber company for injuries sustained in an accident to a brakeman, for which the railroad company settled, where the evidence showed that the rubber company was alone negligent, so that the railroad company in making the payment was a mere volunteer. The expression "all liability" in the contract meant legal liability.—*O. W. R. & N. v. Washington Tire & R. Co.* (Wash.), 219 Pac. 9.

Disk Signs Must Be Placed 300 Feet from Crossing, If Practicable, to Cast Statutory Duty on Automobilist

The New York Appellate Division holds that where a disk sign was located only 230 ft. from a crossing, in the open country, no physical conditions interfering with the location of the sign not less than 300 ft. from the crossing, as required by the law, the statutory duty of an automobilist to reduce speed to a safe limit and proceed cautiously did not attach. "The strict requirements of the statute in respect to drivers of automobiles, as explained by this court in the case cited (*Horton v. New York Central*, 205 App. Div. 763, 200 N. Y. Supp. 365), call for an equally strict requirement in respect to the location of the sign. The one requirement supplements the other."—*Fleahman v. Schenectady*, 206 App. Div. 542, 201 N. Y. Supp. 607.

Notice Requisite to Render Connecting Carrier

Liable for Special Damages for Delay

The contract made by the initial carrier, so far as its terms are valid and applicable, covers the transportation to destination, and damages for unreasonable delay by a connecting carrier are within the liability of the initial carrier on its through contract. But notice of special damages likely to occur on delay, which might charge the initial carrier with liability for the damage, is not an element of the through contract such as will affect the connecting carrier, unless noted on the waybill or otherwise brought home to him. To render the connecting carrier liable either to the initial carrier or to consignor or consignee for special damages arising from delay which are not the ordinary, natural consequences of delay, the connecting carrier must have notice at or before receiving the shipment and undertaking the carriage. Therefore allegations of notice of special damages given the agents of the initial carrier are immaterial in a suit against the connecting carrier.

The federal court, Northern District of Georgia, holds that the requirement of notice that special damages will result from delay can be met only by notice at or before receiving the shipment, and to an agent in position to act in the premises, or one whose duty it is to receive such knowledge and cause others to act thereon, and the agent who receives the shipment for transportation is the obvious and generally the proper channel of such notice. The local agent of the connecting carrier at the delivering station is not such an agent, since he cannot control the shipment, nor the trains carrying it, until it reaches his station.—*Pomona Products Co. v. Southern*, 294 Fed. 982.

Equipment and Supplies

Locomotives

THE LEHIGH VALLEY contemplates buying 20 locomotive tenders of 12,000 gal. capacity.

THE WEST INDIA SUGAR COMPANY has ordered from the Baldwin Locomotive Works 1 Mogul type locomotive for the Central Palma, Cuba.

THE JAPANESE GOVERNMENT RAILWAYS have ordered through Takata & Company, New York, 2, 93-ton electric locomotives and 6, 70-ton electric locomotives. The locomotives will be built by the Baldwin Locomotive Works and the electric equipment supplied by the Westinghouse Electric & Manufacturing Co.

Freight Cars

THE SEABOARD AIR LINE is inquiring for 10 caboose cars.

THE NEW YORK CENTRAL is inquiring for 60 express refrigerator cars of 35 tons' capacity.

THE CHILEAN STATE RAILWAYS are inquiring for 100 flat cars for use on the Arica La Paz Railway.

THE LEHIGH & NEW ENGLAND is inquiring for 200 box cars. This company is also asking for prices on the repair of 300 hopper cars of 50 tons' capacity.

THE INTERNATIONAL RAILWAYS OF CENTRAL AMERICA have placed an order for 90 box cars of 20 tons' capacity. These cars are for service in Guatemala and Salvador.

THE CENTRAL OF BRAZIL, reported in the *Railway Age* of April 26 as inquiring for 50 refrigerator cars, has ordered this equipment from the Middletown Car Company.

THE NATIONAL RAILWAYS OF MEXICO, reported in the *Railway Age* of June 14 as negotiating with car builders in this country for the purchase of 3,500 freight cars of various types, including narrow gage and standard gage cars, have given a contract to Samuel Vauclain, president of the Baldwin Locomotive Works, for about 3,000 freight and passenger cars.

Passenger Cars

THE RUTLAND is inquiring for 1, 70-ft. combination passenger and mail car.

THE NEW YORK, CHICAGO & ST. LOUIS has ordered 1 private car from the Pullman Company.

THE NEW YORK CENTRAL has ordered 28 horse cars, 70 ft. long, from the Merchants Dispatch Transportation Company.

THE CHARLOTTE HARBOR & NORTHERN is inquiring for 2 all-steel coaches and 1 all-steel combination mail and baggage car.

THE SEABOARD AIR LINE, reported in the *Railway Age* of May 31 as contemplating the purchase of from 20 to 25 steel cars for passenger service, is now inquiring for 6 combination passenger and baggage cars, 6 combination mail and baggage cars and 6 express cars.

THE DELAWARE, LACKAWANNA & WESTERN, reported in the *Railway Age* of June 7 as inquiring for 50 steel suburban coaches and 10 steel combination passenger and baggage cars, has ordered the 50 suburban coaches from the Pullman Company and the 10 combination passenger and baggage cars from the Bethlehem Shipbuilding Corporation.

Iron and Steel

THE PENNSYLVANIA is inquiring for 200 tons of steel for repair work on bridges.

THE LOUISVILLE & NASHVILLE has ordered 100 tons of structural steel from the McClintic-Marshall Company.

THE LEHIGH VALLEY has ordered 150 tons of steel from the Bethlehem Steel Corporation for use at Pittston, Pa.

THE NORFOLK & WESTERN is inquiring for 200 tons of structural steel for a building at Bluefield, W. Va., also for 200 additional tons of steel for bridge work.

Machinery and Tools

THE CHICAGO, BURLINGTON & QUINCY has ordered one 10-ton electric traveling crane from the Whiting Corporation.

THE ATCHISON, TOPEKA & SANTA FE recently placed an order for 28 arc welding equipments with the Westinghouse Electric & Manufacturing Company. These equipments will be distributed among fourteen of the company's shops, from Chicago to the Pacific coast.

THE CHICAGO, BURLINGTON & QUINCY is inquiring for two dry dry grinders with motor and automatic control, one motor-driven automatic push button control, combination resaw and scroll, one 3 in. by 17 in. by 36 in. plate turret lathe, and one ball bearing 36-in. motor-driven band saw.

Signaling

G. R. S. Train Control on Three Roads

The General Railway Signal Company, Rochester, N. Y., announces that contracts have been taken for the installation of automatic train control apparatus on full locomotive divisions on the Southern Railway, the Chicago & North Western and the Atlantic Coast Line, the contract with the last-named road taking the place of an earlier contract which provided for a style of apparatus different from that now adopted.

The A. C. L. installation is to be between Richmond, Va., and Rocky Mount, N. C., 124 miles, mostly double track. On the C. & N. W. the installation will be between Boone, Iowa, and Council Bluffs, 149 miles, double track. The Southern contract is for two divisions; Cincinnati, Ohio, to Somerset, Ky., 80 miles double track and 77 miles single track; Spencer, N. C., and Greenville, S. C., 153 miles, double track.

The system to be used on the A. C. L. is the intermittent inductive type, with speed control effected by means of a cam governor. One track magnet, on the right side of the track, has a restrictive function and another, on the left side, has a releasing function. The track apparatus is outside the rails.

On the C. & N. W. the two-position continuous type will be used, with actuation of engine apparatus effected by means of alternating current, in the rails of the cautionary block, superimposed on the existing track circuit of the automatic signal system; the a. c. current being controlled by the track relay of the signal circuit of the section in advance. The cam governor is the same as in the A. C. L. installation. Brakes are set by an "actuator" attached to the engineer's brake valve. An audible signal in the cab warns the engineman when to reduce speed, beginning to sound as soon as the speed rises to within three miles an hour of the rate-per-hour for which the speed governor is set. The sound continues until the speed is reduced.

On the Southern Railway the intermittent inductive type will be used, the same as on the A. C. L. A permanent speed limit will be imposed on passenger trains of 68 miles an hour, and on freight trains of 38 miles an hour; and lower limits will be enforced on certain curves.

THE STATE OF TEXAS proposes to start a suit in the Federal District Court at New Orleans, La., against the United States Government and against the New Orleans, Texas & Mexico, to stop the International-Great Northern merger with the Gulf Coast Lines. Action will be based on the ground that the proposed merger violates the constitution of Texas, which prohibits the consolidation of parallel or competing lines and prohibits railroad companies organized under the laws of the state from consolidating with railways of any other state.

Supply Trade News

William S. Boyce, whose promotion to assistant to the president of the Railroad Supply Company in charge of sales, was announced in the *Railway Age* of June 28, was born in Del Rio, Tex. He graduated from the Agricultural and Mining College of Texas with the degree of civil engineer, and entered the maintenance department of the National Railways of Mexico immediately following. In 1909 he returned to the United States to enter the employ of the Chicago Great Western in the maintenance of way department in the office of the general manager and later was appointed roadmaster. Later he resigned to enter the employ of the Atchison, Topeka & Santa Fe as a roadmaster and in 1911 he entered the railway supply field. In 1923 he became associated with the Railroad Supply Company as a special representative, with headquarters at Chicago, which position he has held until his recent appointment.



W. S. Boyce

National Safety Appliances Company

The National Safety Appliances Company, with headquarters in San Francisco, Cal., has recently reorganized its sales and service forces in the eastern territory, headquarters of which are in the Railway Exchange building, Chicago. The change in organization at this time is occasioned by the recent death of W. T. Tyler, vice-president, and due to the fact that C. C. Anthony is returning to California to serve as consulting engineer for the organization.

K. E. Kellenberger, signaling department editor of the *Railway Age* and editor of *Railway Signaling*, has been appointed eastern manager in charge of sales and service in the territory east of the Rocky Mountains, with headquarters in Chicago. Ed. C. Wilson, formerly western sales manager of the Ohio Locomotive Crane Company, has been appointed sales director, with headquarters at Chicago. J. P. Robinson, signal engineer for the National Safety Appliances Company, with headquarters at San Francisco, Cal., has been transferred to Chicago. E. W. Stone, engineer of construction, has been appointed sales engineer, with headquarters in Chicago. J. C. Anderson, formerly signal supervisor of the Chicago & Alton, has been appointed construction engineer.

K. E. Kellenberger was born in Yates Center, Kan., on December 5, 1883. He attended Ottawa University at Ottawa, Kan., for two years, after which he entered Purdue University, from which he graduated in electrical engineering in 1907. Following his graduation he became a special signal apprentice on the Pennsylvania Lines West of Pittsburgh, with headquarters at Logansport, Ind. In October, 1909, he was transferred to Canton, Ohio, where he remained until October 10, 1910, when he resigned to enter the employ of the Chicago & North Western as signal inspector in connection with the construction of the important interlocking work of the Chicago terminal. In December, 1910, he was promoted to division signal foreman on the Wisconsin division and in June, 1911, he was promoted to signal inspector in charge of construction for the Chicago & North Western system. On March 1, 1913, he was made signal supervisor for the West Iowa, Sioux City, and Northern Iowa divisions and the lines west of the Missouri river, with headquarters at Boone, Iowa. He held this

position until August 26, 1914, when he received an appointment as senior railway signal engineer in the division of valuation, Interstate Commerce Commission, with headquarters at Chicago. In December, 1917, he resigned to become signaling department editor of the *Railway Age* and editor of the *Railway Signal Engineer*, which position he has held until his recent appointment. **Ed. C. Wilson**, sales director for the National Safety Appliances Company, with headquarters at Chicago, was born at Dunmore, Pa., on October 21, 1890, and graduated from the electrical engineering course of Lehigh University in 1913. He completed the electrical apprentice course in the shops of the Buffalo, Rochester & Pittsburgh at DuBois, Pa., and worked in the electrical department of the Northern Pacific at St. Paul for some time. After leaving the Northern Pacific, Mr. Wilson entered the employ of the Central Electric Company in the railway sales department and a year and a half later resigned to take the position as manager of the Chicago territory for the U. S. Light & Heat Corp., and also special representative for the Vapor Car Heating Co. After four years, Mr. Wilson was appointed western sales manager for the Ohio Locomotive Crane Company, which position he held until May 1, when he was appointed

basis. The rebuilding and repairing of old equipment has been less in amount than might reasonably have been expected. Of buying for foreign delivery, there has been but little. While labor and material costs are less than formerly, yet they are still high. All this combines to make the problem of securing an adequate profit one of some difficulty.

"With the close of the Congressional session, the railroads are relieved, for a time at least, of the fear of legislation adversely affecting their interests. The Transportation Act of 1920 was the particular object of attack by some of the numerous 'blocs' into which the Congress was divided. While that Act is by no means perfect as a measure for the relief of the roads, yet it marks a distinct advance over preceding conditions, and a successful result of the various attacks made upon it would be a regrettable set-back to the improvement gradually showing in the general railroad situation.

"Such fear of adverse legislation, and the delay in the enacting of constructive legislation coupled with the unsettlement of business conditions generally to be expected in a 'presidential year,' undoubtedly account in some degree for the falling-off in equipment buying which became noticeable as the company's fiscal year drew to its close. With the ad-



K. E. Kellenberger



Ed. C. Wilson



J. P. Robinson

sales director for the National Safety Appliances Company, with headquarters in Chicago. **J. P. Robinson** was born on August 14, 1887, in Washington, D. C., and entered railway service in 1906 as an office boy and clerk in the office of the general storekeeper of the Southern Pacific. In December of the same year he was transferred to the signal department as file clerk and three years later was assigned to outside signal construction work, serving as a material clerk, as a foreman and later as assistant supervisor of construction. In February, 1919, he was appointed signal inspector on special work of signal valuation. Soon after the completion of the first installation of the National Safety Appliances Company's automotive train control system on the Southern Pacific in 1921, Mr. Robinson was placed in charge for the railroad. In February, 1923, he was appointed signal engineer for the National Safety Appliances Company, with headquarters in San Francisco, and was later transferred to the eastern territory, with headquarters in Chicago.

American Car & Foundry Company

The report of the American Car & Foundry Company for the year ended April 30, 1924, shows gross earnings, after making provisions for taxes, of \$10,786,574 as compared with \$10,633,562 in the previous year. After deducting all charges there remained a balance of \$6,304,967 available for dividends against \$6,213,611 in 1923. Dividends of 7 per cent on the preferred and 12 per cent on the common stocks were paid, leaving a surplus of \$604,967. The surplus at April 30, 1924, was \$37,278,466 as compared with \$36,673,499 at the close of the previous year.

President W. H. Woodin, in his report, says in part:

"During part of the year the buying of new equipment by the railroads was fairly active, but on a closely competitive

justment of these unsettled conditions, it is not unreasonable to expect a resumption of buying in increased volume."

The balance sheet of the American Car & Foundry Company as of April 30, 1924, compares as follows:

ASSETS		
	1924	1923
Property and plant account.....	\$73,359,828	\$72,758,547
Materials	16,533,747	29,111,488
Accounts and notes receivable.....	11,918,598	15,023,070
U. S. Securities.....	8,656,864	2,146,813
Stocks and bonds.....	6,257,206	5,536,721
Cash	7,590,726	5,536,611
	\$124,316,969	\$130,113,249
LIABILITIES		
Preferred stock	\$30,000,000	\$30,000,000
Common stock	30,000,000	30,000,000
Accounts payable	12,272,809	18,547,721
Federal taxes	680,000	748,092
Dividends declared	1,425,000	1,425,000
Reserve Accounts—		
For insurance	1,500,000	1,500,000
For improvements, etc.....	212,642	254,846
For dividends on common stock.....	10,800,000	10,800,000
For employees	148,052	164,092
Surplus account.....	37,278,466	36,673,499
	\$124,316,969	\$130,113,249

Obituary

W. F. Weller, assistant to the vice-president in charge of engineering, of the American Locomotive Company, died suddenly on June 26, in New York City. Mr. Weller entered the service of the Richmond Locomotive Works in 1896 as secretary to the president, Joseph Bryan. Later, upon the formation of the American Locomotive Company he went to New York as assistant to Mr. Sague, mechanical engineer of the company. He remained in that position until Mr. Sague resigned, since which time he has served as assistant to the vice-president in charge of engineering.

Railway Construction

ATCHISON, TOPEKA & SANTA FE.—This company is making preliminary surveys for a branch line from Tulia, Tex., to Silverton, a distance of approximately 25 miles.

ATCHISON, TOPEKA & SANTA FE.—This company has awarded a contract to the Lynch Construction Company, Los Angeles, Cal., for the construction of two additions to its locomotive shops at San Bernardino, Cal. The additions will be 100 ft. by 194 ft. and 45 ft. by 180 ft., respectively.

BALTIMORE & OHIO.—This company has purchased land in the vicinity of East St. Louis, Ill., for the development of a new terminal, the total cost of which will ultimately be \$9,973,000. The terminal will include a westbound receiving yard with a capacity of 1,000 cars, an eastbound receiving yard with a capacity of 800 cars, classification and advance yards with a total capacity of 3,000 cars and other tracks to make the total capacity of the terminal 6,650 cars. The engine terminal will include two engine houses, each with 21 stalls, a machine shop, power house, coaling station, water tanks, ash pits and sanding facilities. In addition, the relocation of the main line from Caseyville, Ill., to Furman is planned. The site of the terminal is now being filled in and tracks laid preliminary to undertaking the entire project at a later date.

CALUMET & HECLA CONSOLIDATED COPPER COMPANY.—This company, located at Calumet, Mich., is calling for bids for the construction of approximately 10 miles of single track railroad near Calumet.

CHESAPEAKE & OHIO.—This company has awarded a contract to Joseph E. Nelson & Sons, Chicago, for the construction of a water station at Gladstone, Va., to cost \$25,000.

CHICAGO, MILWAUKEE & ST. PAUL.—This company contemplates the construction of a grain elevator at Milwaukee, Wis., to replace an elevator destroyed by fire on June 17.

CHICAGO, MILWAUKEE & ST. PAUL.—This company will pay 40 per cent of the total cost of \$40,000 for the construction of a subway under its tracks west of Renton, Wash., on the Pacific Highway. T. R. Beeman, engineer of the King Company, Seattle, is preparing plans for the construction.

CHICAGO & WESTERN INDIANA.—This company has awarded a contract to Joseph E. Nelson & Sons, Chicago, for the laying of 7,000 ft. of 6-in. and 8-in. high pressure pipe line, to cost approximately \$50,000, at the 51st St. shops in Chicago.

GREAT NORTHERN.—This company has awarded a contract to L. I. Stromsvold, Minot, N. D., for the rebuilding of ten stalls of the enginehouse at Minot and has awarded a contract to J. A. Dinnie & Co., Grand Forks, N. D., for the rebuilding of ten stalls of the enginehouse at Williston, N. D.

ILLINOIS CENTRAL.—This company has awarded a contract to the Ellington-Miller Company, Chicago, for the construction of a 300 ft. by 67 ft. brick and steel mail terminal at Memphis, Tenn., reported in the *Railway Age* of March 22.

PACIFIC FRUIT EXPRESS.—This company plans the construction of car repair shops, paint shop and store sheds at Nampa, Idaho, to cost approximately \$450,000.

ST. LOUIS-SAN FRANCISCO.—This company has awarded a contract to Joseph E. Nelson & Sons, Chicago, for the construction of a power house and steam and air lines at its East Thomas terminal near Birmingham, Ala.

THOMPSON & CLARK TIMBER COMPANY.—This company has awarded a contract to the Atlas Construction Company, Vancouver, B. C., for the construction of a logging road from Courtney, Vancouver Island, to Horn Lake, a distance of 13 miles.

WABASH.—This company has prepared plans for a two-story 40 ft. by 140 ft. addition to its hospital building at Decatur, Ill.

Railway Financial News

ATCHISON, TOPEKA & SANTA FE.—Acquisition.—The Interstate Commerce Commission has authorized this company to acquire control of the California Southern, with a line from Rice to Ripley, Calif., 49.85 miles, by purchase of its capital stock of \$162,500, from the Santa Fe Land Improvement Company, for \$159,450. The line has been operated under lease.

BUFFALO & SUSQUEHANNA.—Tentative Valuation.—The Interstate Commerce Commission has issued a tentative valuation report placing the final value of this company's common carrier property owned, as of June 30, 1919, at \$9,405,900 and of the property used at \$9,845,905. The outstanding capitalization as of valuation date was \$13,008,719.

CALIFORNIA SOUTHERN.—Acquisition.—See Atchison, Topeka & Santa Fe.

CAROLINA, CLINCHFIELD & OHIO.—Equipment Trust.—The Interstate Commerce Commission has authorized an issue of \$1,000,000 of 5 per cent equipment trust certificates at not less than 96½.

CHESAPEAKE & OHIO.—Operating Ratio.—For the first four months of 1924 the operating ratio was 76.49 instead of 85.4, as reported in the *Railway Age* of June 14, 1924, page 1527.

Equipment Trust.—This company has applied to the Interstate Commerce Commission for authority for an issue of \$18,000,000 of 5 per cent equipment trust certificates to be sold to J. P. Morgan & Co. at 98. The certificates have been placed privately at par.

CHICAGO, ROCK ISLAND & PACIFIC.—Five-Year Notes.—This company has applied to the Interstate Commerce Commission for authority to issue \$10,000,000 of five-year 5 per cent secured gold notes, to be secured by \$15,000,000 of first and refunding mortgage bonds, the proceeds to be used to retire a note for \$8,000,000 to the director general of railroads and for additions and betterments. The notes have been sold to Speyer & Co., at 97.25.

CHICAGO, TERRE HAUTE & SOUTHEASTERN.—Bonds.—This company has been authorized by the Interstate Commerce Commission to issue \$1,020,000 of 5 per cent first and refunding mortgage bonds, to be delivered to the Chicago, Milwaukee & St. Paul to reimburse it for expenditures for additions and betterments. The C. M. & St. P., was also authorized to assume obligation and liability for the bonds, as lessee.

DENVER & RIO GRANDE WESTERN.—Interest.—Kuhn, Loeb & Co. and the Equitable Trust Company, reorganization managers, on July 1 issued the following statement:

The Federal Court having failed to order the receiver to pay the interest on the first consolidated mortgage bonds of the Denver & Rio Grande Railroad and the first trust mortgage bonds of the Rio Grande Western maturing today, Kuhn, Loeb & Co. and the Equitable Trust Company of New York, as reorganization managers, are arranging to provide the funds today to pay the maturing coupons on behalf of the first and refunding mortgage bonds and adjustment mortgage bonds of the Denver & Rio Grande Railroad deposited under the reorganization plan which has recently been approved by the Interstate Commerce Commission.

It is understood that the Missouri Pacific and Western Pacific are providing the money to pay the July 1 interest on the Denver & Rio Grande underlying bonds. Both of these roads have a half interest in the Denver.

ERIE.—Notes Sold.—J. P. Morgan & Co. have bought and placed privately \$10,000,000 two-year 5 per cent notes, dated July 1, 1924, and maturing July 1, 1926.

HOCKING VALLEY.—Equipment Trust.—This company has applied to the Interstate Commerce Commission for authority for an issue of \$1,740,000 of 5 per cent equipment trust certificates to be sold to J. P. Morgan & Co., at 98. These certificates have been placed privately by the bankers.

MISSOURI-KANSAS-TEXAS.—Acquisition.—The Interstate Commerce Commission has authorized the acquisition and operation by this company of the lines and properties of the Boonville Railroad Bridge Company and the Missouri, Kansas & Texas Terminal Company of St. Louis.

(Continued on page 41)

Annual Report

Cleveland, Cincinnati, Chicago & St. Louis.—Thirty-fifth Annual Report

To the Stockholders of

THE CLEVELAND, CINCINNATI, CHICAGO AND ST. LOUIS RAILWAY COMPANY:
The Board of Directors herewith submits its report for the year ended December 31, 1923, with statements showing the income account and the financial condition of the company.

Road operated

The mileage covered by this report is as follows:

	1923 Miles	1922 Miles	Decrease Miles
Main line and branches owned.....	1,685.45	1,685.45	....
Leased lines	205.06	205.06	....
Lines operated under contract.....	326.84	326.84	....
Lines operated under trackage rights....	190.55	192.08	1.53
Total road operated.....	2,407.90	2,409.43	1.53

The decrease of 1.53 miles in lines operated under trackage rights is due to change in classification of a portion of the Louisville and Jeffersonville Bridge and Railroad Company tracks in Louisville, Kentucky.

Maximum tonnage, operating revenues and net income

Previous records were broken by the performance for 1923 in the following respects, among others:

	Previous record year	Increase in 1923 over previous record year
Revenue tonnage	1918	14.38 per cent
Railway operating revenues.....	1920	6.84 per cent
Freight revenue	1922	12.66 per cent
Net income	1916	39.44 per cent

The passenger revenue was greater than in any previous year except 1920, being 8.95 per cent less than in that year.

INCOME ACCOUNT FOR THE YEAR

	Year ended Dec. 31, 1923	Year ended Dec. 31, 1922	Increase or Decrease
	2,407.90	2,409.43	—1.53 miles
OPERATING INCOME			
Railway operations			
Railway operating revenues.....	\$94,941,444.28	\$84,665,690.16	\$10,275,754.12
Railway operating expenses.....	72,114,740.94	64,858,313.54	7,256,427.40
Net revenue from railway operations	\$22,826,703.34	\$19,807,376.62	\$3,019,326.72
Percentage of expenses to revenues	(75.96)	(76.61)	—(6.5)
Railway tax accruals.....	\$5,124,227.11	\$4,226,814.61	\$897,412.50
Uncollectible railway revenues	13,206.10	10,962.98	2,243.12
Railway operating income.....	\$17,689,270.13	\$15,569,599.03	\$2,119,671.10
Equipment rents, net debit....	\$269,865.79	\$1,230,728.94	—\$960,863.15
Joint facility rents, net debit....	727,503.05	591,641.10	135,861.96
Net railway operating income.....	\$16,691,901.28	\$13,747,228.99	\$2,944,672.29
MISCELLANEOUS OPERATIONS			
Revenues	\$29,512.99	\$27,954.57	\$1,558.42
Expenses and taxes.....	22,175.23	19,703.33	2,471.90
Miscellaneous operating income	\$7,337.76	\$8,251.24	—\$913.48
Total operating income.....	\$16,699,239.04	\$13,755,480.23	\$2,943,758.81
NON-OPERATING INCOME			
Income from lease of road....	\$220,768.92	\$321,843.23	—\$101,074.31
Miscellaneous rent income.....	168,616.01	223,894.06	—55,278.05
Miscellaneous non-operating physical property	196,432.50	194,042.24	2,390.26
Dividend income	484,553.90	74,105.89	410,448.01
Income from funded securities	403,757.52	447,176.09	—43,418.57
Income from unfunded securities and accounts.....	319,701.69	397,031.92	—77,330.23
Release of premiums on funded debt	1,300.04	1,165.44	—65.40
Miscellaneous income	805,428.73	26,328.89*	831,757.62
Total non-operating income	\$2,600,359.31	\$1,632,929.98	\$967,429.33
Gross income.....	\$19,299,598.35	\$15,388,410.21	\$3,911,188.14
DEDUCTIONS FROM GROSS INCOME			
Rent for leased roads.....	\$134,458.16	\$110,990.00	\$23,468.16
Miscellaneous rents	262,779.42	271,663.81	—8,884.39
Miscellaneous tax accruals....	18,302.87	15,207.74	3,095.13
Separately operated properties—loss	39,867.57	65,310.55	—25,442.98
Interest on funded debt.....	6,729,744.25	6,400,594.87	329,149.38
Interest on unfunded debt....	267,812.84	807,864.92	—540,052.08
Amortization of discount on funded debt	206,551.04	158,982.17	47,568.87
Maintenance of investment organization	311.20	51.17	260.03
Miscellaneous income charges.....	22,416.67	28,908.43	—6,491.76
Total deductions from gross income	\$7,682,244.02	\$7,859,573.66	—\$177,329.64
Net income.....	\$11,617,354.33	\$7,528,836.55	\$4,088,517.78

DISPOSITION OF NET INCOME

Dividends declared			
On preferred stock, 5 per cent each year	\$499,925.00	\$499,925.00	.....
On common stock, 4 per cent in 1923; 5 per cent charged to 1922 income.....	1,881,148.00	2,351,435.00	—\$470,287.00
Sinking funds	41,169.02	39,175.10	1,993.92
Investment in physical property .....	.....	55,898.62	—55,898.62
Total appropriations of income	\$2,422,242.02	\$2,946,433.72	—\$524,191.70
Surplus for the year carried to profit and loss..	\$9,195,112.31	\$4,582,402.83	\$4,612,709.48
*Debit.			

Operating expenses

The increase of \$1,532,175.64 in expense for maintenance of way and structures is largely due to a more extensive program for the year of track laying and ballasting involving 10,000 more tons of new rail laid than in 1922 and 427,625 more cubic yards of ballast applied.

The increase of \$3,678,540.64 in expense for maintenance of equipment is to a substantial extent due to the inactivity at the Beech Grove shops during the shut-down period extending through the months of January and February and into March, 1922, and curtailment of repair work during July, August and September of that year on account of the shopmen's strike.

The increase of \$1,884,839.69 in transportation expenses is attributable largely to the heavier traffic handled during the year. While there was an increased consumption of fuel in 1923 to the extent of 282,000 tons, lower prices resulted in an outlay for fuel \$455,000 less than in the previous year.

Operating expenses, by groups, were as follows:

Group	Amount	Increase
Maintenance of way and structures.....	\$10,984,411.95	\$1,532,175.64
Maintenance of equipment.....	22,407,724.73	3,678,540.64
Traffic	1,330,102.84	2,973.75*
Transportation	34,558,724.95	1,884,839.69
Miscellaneous operations	687,237.73	13,674.93
General	2,227,211.72	165,299.18
Transportation for investment—credit....	80,672.98	15,128.93*
Total operating expenses.....	\$72,114,740.94	\$7,256,427.40

*Decrease.

Property investment accounts

Increases in the property investment accounts for the year, as shown in detail elsewhere in this report, were as follows:

Road	\$5,151,458.85
Equipment	4,161,073.47
Miscellaneous physical property.....	39,242.24
Improvements on leased railway property.....	113,836.99
Total	\$9,465,611.55

Changes in funded debt

The changes in the funded debt of the company, in detail, were as follows: The amount on December 31, 1922..... \$133,082,735.11

has been increased as follows:	
N Y C Lines Equipment Trust 4½ per cent certificates of September 1, 1922.....	3,360,000.00
N Y C Lines Equipment Trust 5 per cent certificates of June 1, 1923	930,000.00
	\$137,372,735.11

and has been reduced as follows:
Bonds retired or purchased for sinking fund during the year:
C I St L & C Ry Co general first mortgage bonds retired through sinking fund..... \$70,000.00
C C & St L Ry Co (St Louis Division) first collateral trust mortgage bonds purchased for sinking fund

This trust was created by agreement dated June 1, 1923, to which The New York Central Railroad Company, The Michigan Central Railroad Company and The Cleveland, Cincinnati, Chicago and St. Louis Railway Company are parties. Under the trust \$17,340,000 of 5 per cent equipment trust certificates maturing in equal annual installments of \$1,156,000 over a period of fifteen years were issued, representing approximately 75 per cent of the cost

of the equipment leased by the Trustee to the railroad companies. The equipment allotted to this company under the trust, estimated to cost \$1,263,877.28, consists of 26 coaches, 5 passenger and baggage cars, 15 baggage cars and 2 dining cars. The certificates are prorated among the railroad companies in proportion to the cost of the equipment allotted to each, this company's share being \$930,000.

Amount of bonds issuable under Refunding and Improvement mortgage for other than refunding purposes increased

In accordance with the provisions of the company's Refunding and Improvement mortgage, dated June 27, 1919, the amount of bonds issuable thereunder for other than refunding purposes was increased, by majority vote of the preferred stock of the company at a special stockholders' meeting held December 22, 1923, from \$25,000,000 to \$35,000,000.

Guaranty of additional bonds of The Cleveland Union Terminals Company

During the year The Cleveland Union Terminals Company created a new series of its first mortgage bonds, known as series B, consisting of fifty-year 5 per cent bonds. The issue of \$15,000,000 of bonds of this series was authorized in 1923, of which \$5,000,000, jointly and severally guaranteed by this company and the other proprietors of the Terminals Company under guaranty agreement dated July 17, 1923, were issued and sold during the year.

Acquisition of stock of The Cincinnati Northern Railroad Company

During the year the company acquired 16 shares, par value \$1,600, of the capital stock of The Cincinnati Northern Railroad Company, making the total shares in that company now owned by this company 29,305, or 97.68 per cent of the total shares outstanding.

Acquisition of European Loan bonds

With additional purchases in 1923, the company's holdings of European Loan bonds at the end of the year amounted to 38,624,000 francs, equivalent at the normal rate of exchange to \$7,454,571.31. The total cost of these bonds was \$3,602,948.82.

Final settlement with Railroad Administration

Agreement was reached with the Director General of Railroads under which the company paid to the United States Railroad Administration \$5,000,000 in full settlement for itself and the Muncie Belt Railway Company, which was included in its contract, of balance due for the federal control period. The \$5,000,000 payable to the Railroad Administration was distributed between the two companies as follows:

Net amount payable by the C. C. & St. L. Ry. Co. . . . \$5,004,818.05

Net amount receivable by the Muncie Belt Ry. Co. . . . 4,818.05

The net amount payable by this company, \$5,004,818.05, is the final balance agreed upon in general settlement after taking into account the various debits and credits arising under the contract and payments thereto made by each party to the other. The total amount of compensation which accrued in the company's favor for use of its owned and leased lines during the period of federal control was \$21,855,470.57. Prior to the final settlement there had been paid to the company from time to time on account of compensation and as cash advances \$15,534,500 and the company had paid to the Director General \$3,000,000 upon open accounts and for additions

[ADVERTISEMENT]

(Continued from page 39)

MISSOURI PACIFIC.—Notes.—This company has applied to the Interstate Commerce Commission for authority to issue and sell \$12,000,000 of three-year 5 per cent secured gold notes, which have been sold to Kuhn, Loeb & Co., at 97½, and to pledge as security for the notes \$15,000,000 of first and refunding mortgage 6 per cent gold bonds.

Equipment Notes.—The Bank of North America & Trust Company of Philadelphia and Janney & Co., Philadelphia, are offering \$2,545,400 Missouri Pacific 6 per cent equipment gold notes maturing January 15, 1925 to 1935, to yield from 4.50 per cent to 5.75 per cent. These notes were issued under agreement with the Director General of Railroads. Through supplemental agreement 33½ per cent of the notes of each maturity originally issued were stamped as subordinate in lien.

MISSOURI PACIFIC.—Hearing on Proposed Acquisition of N. O. T. & M.—The Interstate Commerce Commission has announced a hearing to be held at New Orleans on July 28 before Director Mahaffie of its Bureau of Finance on this company's application for authority to acquire control of the New Orleans, Texas & Mexico and to issue securities.

NORFOLK & WESTERN.—Tentative Valuation.—The Interstate Commerce Commission's tentative valuation report as of June 30, 1916, covering 2,051 miles of first main track and 3,956 miles of all tracks, gives a final value for rate-making purposes of \$237,472,089 for the carrier property used and \$237,428,455 for the property owned. The outstanding capitalization as of valuation date is reported at \$236,765,700 and the investment in road and equipment as shown on the books at \$263,585,356. This figure is readjusted to \$263,889,227, of which about half is said to represent the par value of securities issued or assumed. The cost of reproduction new for the owned property is placed at \$256,040,515 and for the used property at \$255,976,850, while the cost of reproduction less depreciation is given as \$205,441,485 for the owned property and \$205,417,593 for the used property. In addition the 28,038 acres of carrier lands used are given a present value of \$16,385,912. The report says the company owns securities of other companies held for non-carrier purposes of a par value of \$16,579,039 and a

and betterments. The total amount expended by the Director General for additions and betterments upon the company's owned and leased lines was \$11,967,529.54, including \$1,694,474.75 representing initial cash payment upon allocated equipment included in an equipment trust.

Guaranty period settlement

During the year the Interstate Commerce Commission determined the amount due to the company by the United States Government for the so-called Guaranty Period, March 1 to August 31, 1920, under the provisions of Section 209 of the Transportation Act 1920, to be \$3,434,911.86, of which there had been paid on account, prior to 1923, \$470,000, leaving a balance of \$2,964,911.86 which was received during the year in full settlement.

Central Indiana Railway

Pursuant to the Court's decree in the foreclosure proceedings referred to in the annual report for 1922, the property of the Central Indiana Railway Company was offered for sale on October 9, 1923, but there were no bidders. Thereafter application was made by the Trustee of the mortgage for a modification of the decree permitting sale of the road in parcels, but the application was denied and the Court ordered that the property be again put up for sale on March 17, 1924.

This company has taken up \$747,000 of the \$750,000 of 4 per cent Central Indiana mortgage bonds guaranteed by it, under its offer to pay par for these bonds in protection of the guaranty.

This company and the Pennsylvania now own practically all of the bonds of the Central Indiana, as well as all of its stock, and consideration is being given to plans as to the future of the property.

Pensions

The pension rules of the company were revised, effective July 1, 1923, the modifications for the most part favoring the employee. Provision is made for credit for service with other system lines or in certain cases with contractors performing work for the company. The rules now allow service credit, in the discretion of the Pension Board, during involuntary absence, and provide for pension without regard to the age of the employee when he enters the service. The service requirement for pensions to those reaching the age limit of seventy years is raised from ten to fifteen years.

During the year 53 employees were retired and placed upon the pension rolls. Of these retirements, 33 were authorized because of the attainment of seventy years of age, and 20 because of permanent physical disability. Thirty-four pensioners died during 1923. At the close of the year, 384 retired employees were carried on the pension rolls. The total amount paid in pensions during the year was \$143,235.60.

Changes in organization

The Board records the appointment of the following:

John K. Graves, Assistant Vice President, January 1;

Sidney B. Wight, Assistant to President, November 14;

William C. Bower, Manager Purchases and Stores, November 14;

Henry A. Stahl, Assistant General Treasurer, December 1.

Appreciative acknowledgement is made to officers and employees of their loyal and efficient co-operation and service.

For the Board of Directors,

ALFRED H. SMITH,
President.

book value, stated in the books as the Norfolk & Western's net investment in them, of \$21,356,942. Cash on hand and materials and supplies amounted to \$9,302,639, of which \$4,892,000 is held necessary for use as working capital and included in the final value, the rest being held to be non-carrier property.

ST. LOUIS & OHIO RIVER.—Stock Issue.—This company has applied to the Interstate Commerce Commission for authority to issue \$1,490,000 of common stock, of which \$1,231,121 is to be used to discharge an obligation to the Aluminum Company of America.

TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS.—Bonds.—This company has applied to the Interstate Commerce Commission for authority to sell at 81½ or better \$2,000,000 of general mortgage 4 per cent bonds now held in its treasury.

VIRGINIAN.—Bonds.—This company has been authorized by the Interstate Commerce Commission to pledge \$4,500,000 of first mortgage 50-year gold bonds and \$1,500,000 of Virginian & Western first mortgage 5 per cent bonds, guaranteed by the Virginian, with the National City Bank of New York as security for two short-term loans aggregating \$4,000,000.

Dividends Declared

Atchison, Topeka & Santa Fe.—Common, 1½ per cent, quarterly, payable September 2, to holders of record July 25.

Baltimore & Ohio.—Common, 1½ per cent quarterly; preferred, 1 per cent; both payable September 2 to holders of record July 19.

Central of New Jersey.—2 per cent, quarterly, payable July 15 to holders of record July 9; 2 per cent (extra), payable August 15 to holders of record August 6.

Delaware & Hudson.—2¼ per cent, quarterly, September 20 to holders of record August 28.

Delaware, Lackawanna & Western.—3 per cent, quarterly, payable July 21 to holders of record July 5.

Pennsylvania Company.—3 per cent, semi-annually, payable June 25.

Trend of Railway Stock and Bond Prices

	July 1	Last Week	Last Year
Average price of 20 representative railway stocks	67.25	66.45	59.76
Average price of 20 representative railway bonds	87.37	87.14	82.25

Railway Officers

Financial, Legal and Accounting

C. H. Schulken has been appointed auditor of the Tennessee Railroad, with headquarters at Oneida, Tenn., succeeding **W. E. Collins**, resigned.

Henry H. Lee, assistant treasurer of the Pennsylvania, with headquarters at Philadelphia, Pa., has been promoted to treasurer, with the same headquarters, succeeding **James F. Fahnestock**, deceased.

K. F. Burgess, general attorney of the Chicago, Burlington & Quincy, with headquarters at Chicago, has been promoted to general solicitor, with the same headquarters, succeeding **Bruce Scott**, promoted to general counsel.

Bruce Scott, general solicitor of the Chicago, Burlington & Quincy, with headquarters at Chicago, has been promoted to general counsel, with the same headquarters, succeeding **O. M. Spencer**, whose death on June 5 was reported in the *Railway Age* of June 14. Mr. Scott has also been appointed general counsel of the Colorado & Southern.

Operating

M. E. Madden, superintendent of the Alabama Great Southern, with headquarters at Birmingham, Ala., has been appointed superintendent of the Washington division of the Southern Railway, with headquarters at Alexandria, Va., succeeding **G. R. Buddin**, resigned.

J. W. Rea, superintendent of the Missouri division of the Missouri Pacific, with headquarters at Poplar Bluff, Mo., has been transferred to the Eastern division, with headquarters at Jefferson City, Mo., succeeding **W. E. Merrifield**, who died on June 27. **R. C. Williams**, acting superintendent of the Joplin division, with headquarters at Nevada, Mo., has been promoted to superintendent of the Missouri division, succeeding **Mr. Rea**. **J. K. Hobbs** has been appointed trainmaster, with headquarters at Nevada, Mo.

Traffic

B. H. Lord, trainmaster of the Wrightsville & Tennille, with headquarters at Tennille, Ga., has been appointed traffic manager, with headquarters at Dublin, Ga.

F. E. Landmeier has been appointed western passenger agent of the Chesapeake & Ohio, with headquarters at St. Louis, Mo., in charge of the passenger office recently reopened in that city.

The titles of **Walter Thayer**, general coal freight agent of the Pennsylvania at Philadelphia, Pa., and **J. C. Venning**, general coal freight agent at Pittsburgh, Pa., have been changed to coal traffic manager.

A. T. Allen has been appointed coal transportation agent of the Chicago & Eastern Illinois, with headquarters at Chicago. The position of manager of coal traffic, which was formerly held by **O. R. Patterson**, whose death on June 11 was reported in the *Railway Age* of June 21, has been abolished.

J. N. Gall, general western agent of the Boston & Maine at Chicago, has been appointed general agent at New York, a newly opened office. **H. S. Garvey**, general agent at Detroit, Mich., has been transferred to Chicago, in the same capacity. **J. J. Wright**, traveling freight agent at Troy, N. Y., has been appointed general agent at Detroit.

J. L. Amos, assistant traffic manager of the Union Pacific, with headquarters at San Francisco, Cal., has been transferred

to Salt Lake City, Utah, in a newly created position. **A. V. Kipp**, assistant general freight agent, with headquarters at Salt Lake City, has been promoted to assistant traffic manager at San Francisco, succeeding **Mr. Amos**. **H. E. Godwin**, assistant general freight agent, with headquarters at Salt Lake City, has been promoted to general freight agent, with the same headquarters, succeeding **J. A. Reeves**, who will retire on July 1 on account of ill health. **A. E. Hobbs** has been appointed assistant general freight agent at Salt Lake City, succeeding **Mr. Godwin**.

G. M. Wood, general freight agent of the New York, New Haven & Hartford, with headquarters at New Haven, Conn., has been promoted to freight traffic manager, with the same headquarters. **F. C. Coley**, general passenger agent, has been promoted to passenger traffic manager, also with headquarters at New Haven. **Richard Hackett**, assistant to the vice-president, with headquarters at New Haven, has been appointed western freight traffic manager, with headquarters at Chicago, all newly created positions. **F. P. Kinney**, assistant general freight agent, has been appointed general freight agent, succeeding **Mr. Wood**. **H. L. Sheffield** has been appointed assistant general freight agent. **W. P. Read**, assistant general passenger agent, has been appointed general passenger agent, succeeding **Mr. Coley**. **Harold Price** has been appointed assistant general passenger agent, all with headquarters at New Haven.

Mechanical

F. R. Butts has been appointed assistant master mechanic of the Hannibal division of the Chicago, Burlington & Quincy, with headquarters at Hannibal, Mo., succeeding **J. J. Simmons**, who has been assigned to other duties.

J. C. Fritts, master car builder of the Delaware, Lackawanna & Western, with headquarters at Scranton, Pa., has resigned and the duties heretofore performed by Mr. Fritts have been assumed by **C. J. Scudder**, superintendent of motive power and equipment.

P. Kass, general foreman, car department, of the Chicago, Rock Island & Pacific, at Chicago, has been promoted to superintendent of the car department, with the same headquarters, succeeding **E. G. Chenoweth**, who has been granted leave of absence.

Special

Dr. S. T. Vandover has been appointed chief surgeon of the hospital department of the Terminal Railroad Association of St. Louis, with headquarters at St. Louis, Mo., succeeding **Dr. W. A. McCandless**, deceased.

R. C. Richards, formerly general claim agent and more recently chairman of the Safety First committee of the Chicago & North Western has retired from active service. Mr. Richards was born at Chicago, on April 6, 1855, and entered railway service in 1870 as an office boy in the office of the general manager of the Chicago & North Western. He was promoted to clerk to the general solicitor in 1872 and in 1878 was promoted to assistant solicitor. Mr. Richards was promoted to general claim agent in 1882 and remained in that position until 1922, when his advanced age led to his being relieved of his duties as general claim agent; and since then his title has been chairman of the Safety First committee. His entire railway service of 54 years was with the Chicago & North Western. Mr. Richards is the father of "Safety First" on American railroads, having begun his activities in that line some fourteen years ago; and of all the records of lives and limbs saved, and happiness promoted, in this work, those of the Chicago & North Western are among the best—probably the best.

Obituary

H. L. Stout, vice-president of the Missouri Southern, with headquarters at Chicago, died in that city on June 25.